

Historic, Archive Document

Do not assume content reflects current
scientific knowledge, policies, or practices.

HD924/
087

SS

United States
Department of
Agriculture

Economic
Research
Service

FTS-268
November 1993

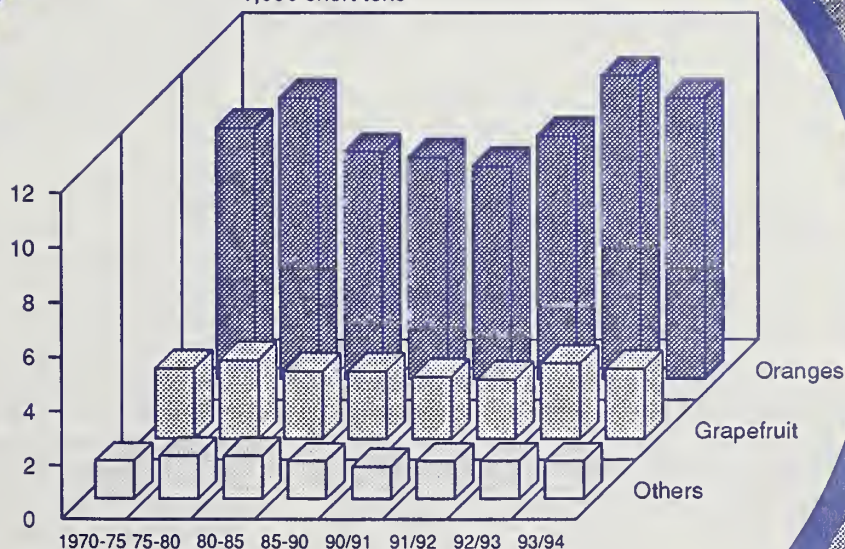
Fruit and Tree Nuts

Situation and Outlook Report

USDA LIBRARY
NAT'L AGRIC. RECEIVED
JUN 10 1994
CURRENT SERIALS
ACQ. / SERIALS

U.S. Citrus Fruit Production

1,000 short tons



Contents

	Page
Fruit Price Outlook	
Moderately Higher Fruit Prices Expected in Early 1994	5
Citrus Fruit Outlook	
U.S. Citrus Crop Down 7 Percent in 1993/94	8
U.S. Orange Crop and Juice Output Expected To Decline in 1993/94	9
California Navel Orange Crop Down in 1993/94	12
U.S. Grapefruit Crop Down in 1993/94	14
Lemon Production Down Slightly in 1993/94	16
U.S. Lime Production Remains Low	17
Noncitrus Outlook	
Less Noncitrus Production Lifts Some Grower Prices	21
Cranberry Output Stable	24
U.S. Fruit Exports to Mexico and the Far East Expand	26
Tree Nut Outlook	
Larger Supplies of Most Tree Nuts in 1993/94	29
Special Articles	
Trends in U.S. Fruit Yields 1970-92	33
Market Values for the Major Characteristics of Fresh Pears	37
List of Tables	40

Situation Coordinator

Dennis A. Shields
Voice (202) 219-0884 FAX (202) 219-0042

Principal Contributors

Dennis A. Shields
Diane Bertelsen

Editor

Dixie Lee

Graphics and Table Design & Layout

Wynnice P. Napper

Word Processing and Design & Layout

Kyra A. Toland

Approved by the World Agricultural Outlook Board. Summary released November 17, 1993. The summary of the next *Fruit and Tree Nuts Situation and Outlook* is scheduled for release in March 1994. Summaries and text of reports may be accessed electronically; for details, call (202) 720-5505.

The *Fruit and Tree Nuts Situation and Outlook* is published three times a year and supplemented by a yearbook.

Time to renew? Your subscription to the *Fruit and Tree Nuts Situation and Outlook* expires in the month and year shown on the top line of your address label. If your subscription is about to expire, renew today. Call 1-800-999-6779.

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotope, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C., 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal opportunity employer.

Summary

Smaller Crops of Most Major Fruits in 1993/94

U.S. citrus production is forecast down 7 percent in 1993/94 from last year's near-record output. USDA forecasts lower output of oranges (down 7 percent from 1992/93), grapefruit (down 9 percent), and lemons (down 1 percent). Weather in citrus growing regions in Florida, Texas, Arizona, and California has been generally favorable thus far.

Primarily because of a smaller Florida orange crop and slightly lower juice yields, U.S. orange juice production is expected to total 1.1 billion gallons (single strength equivalent), down 10 percent from the record set last year. Higher beginning stocks will partially offset lower production, consequently, the U.S. orange juice supply, including imports, is expected down only 3 percent from 1992/93. Grower prices for processed oranges will likely increase from last year's lows.

The California orange crop, which is mostly sent to the fresh market, is expected to be down 6 percent in 1993/94 from a year earlier. A 13-percent smaller California navel crop will contrast with an 8-percent larger Valencia crop. Navel quality is generally good. Grower and retail prices for fresh-market oranges through the navel season will likely run higher than last year.

The 1993/94 Florida grapefruit crop will be smaller than last year's record, but high sugar content is expected to result in good-eating fruit. The California desert grapefruit crop is unchanged from last season, and Texas and Arizona expect to harvest larger crops in 1993/94. Grower prices for grapefruit are expected to be higher than last year when a bumper crop and weak export demand resulted in low prices.

Declines in U.S. production of apples, Bartlett pears, and grapes in 1993 provided support for some grower prices. The October forecast for the U.S. apple crop was lowered 3 percent from the August forecast, and 2 percent less than the 1992 record. The Washington State apple crop is forecast the same as last year. In many States, harvest has fallen short of expectations. Although 1993/94 apple supplies will be lower than last year, other-than-Bartlett pears (marketed from October through June) will be more plentiful. Production of these pears in 1993 was up 8 percent from a year earlier.

Although exports of apples, grapes, and pears dropped in 1992/93, foreign markets still accounted for 10-25 percent of the fresh-market utilization. The downturn can be reversed by continued market development. The prospect for selling U.S. apples in Japan has improved, and the market for U.S. table grapes in Mexico has been opened.

Moderately Higher Fruit Prices Expected in Early 1994

Retail fresh fruit prices were slightly lower than the year earlier during most of the first half of 1993. Larger supplies and lower prices of fresh-market apples, oranges, and bananas were reflected in the Consumer Price Index (CPI) for fresh fruit, which averaged 185 (1982-84=100) during the first 6 months of 1993, down from 187 a year earlier.

But beginning in July, higher prices for some fresh summer fruits, including plums, nectarines, cherries, grapes, and Valencia oranges, boosted the fresh fruit CPI. In September and October, higher prices for new-crop apples and late-season fresh Valencia oranges helped maintain the CPI above a year earlier. The CPI for processed fruit in 1993 (January-October) was below the previous year mostly because of lower retail prices for orange and apple juices.

Reduced supplies are expected to lead to higher grower and retail prices for fresh-market apples, navel oranges, and grapefruit through at least the first quarter of 1994. However, prices that are close to last year for bananas and lower for pears are expected to moderate the rise in overall fruit prices. Prices of imported fruit also affect the CPI. Fruit growing conditions have been normal in Chile, the main U.S. supplier of offseason fruits. Ample fruit imports from Chile could moderate the expected higher U.S. retail prices in early 1994.

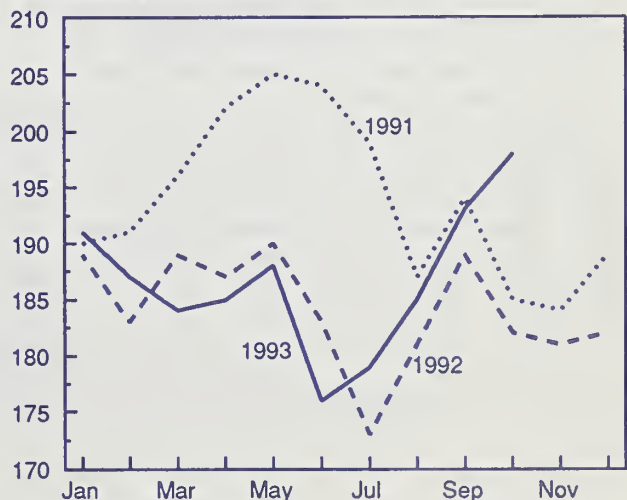
Larger Supplies of Most Tree Nuts in 1993/94

Tree nut production in 1993 is forecast at 925 million pounds (shelled), up 9 percent from a year earlier.

Figure 1

Fresh Fruit: Consumer Price Index

% of 1982-84



However, because of lower beginning stocks and a smaller almond crop, the U.S. tree nut supply in 1993/94 is expected to be up only 1 percent from last year. Lower beginning stocks of all tree nuts except pistachios led to the lowest tree nut carry-over since 1987/88. Nevertheless, a bumper crop of walnuts, and record crops of pecans, hazelnuts, and pistachios are expected to put downward pressure on grower prices in 1993/94.

Special Articles

A special article examines trends in selected U.S. fruit yields during 1970-92. During this period, U.S. fruit growers planted improved varieties and changed cultural practices, which have boosted production and average yields for apples, pears, grapes, peaches, oranges, and

grapefruit. Peach and citrus yields were quite variable in the 1980's because of weather-related crop losses.

A second special article presents results of a statistical analysis that estimates implicit values for characteristics of pears, which cannot be directly measured in the marketplace. The results indicate the amount of the premium or discount (relative to a "reference pear" price) the market places on pear varieties, type of storage, market destination (domestic or export), pear size, and week of the marketing year. The implicit values are then used to approximate prices of boxes of pears, given various characteristics.

Figure 2

Frozen Fruit and Juice: Consumer Price Index

% of 1982-84

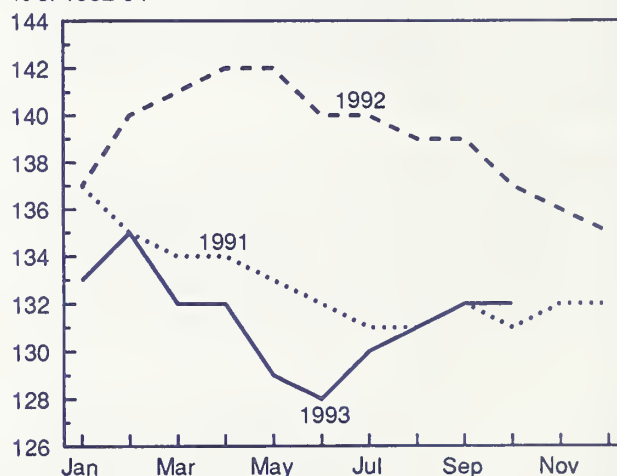


Table 1--U.S. monthly consumer fresh fruit price indexes, 1991-93

Month	Apples			Oranges 1/		
	1991	1992	1993	1991	1992	1993
--1982-84=100--						
January	158	173	161	206	188	155
February	162	177	165	224	179	152
March	164	177	161	235	172	154
April	166	183	161	246	166	158
May	173	190	165	244	178	164
June	183	196	168	271	189	179
July	190	200	172	286	179	192
August	193	202	185	299	181	214
September	190	186	188	317	181	258
October	162	154	168	272	179	268
November	164	154		206	169	
December	170	154		187	157	

1/ Includes tangerines.

Source: Bureau of Labor Statistics, Department of Labor.

NAFTA Passes House of Representatives

On November 17, 1993, the U.S. House of Representatives approved the North American Free Trade Agreement (NAFTA). If also approved by the U.S. Senate and signed into law by the President, as expected, NAFTA will likely take effect January 1, 1994. The agreement eliminates most trade barriers among the United States, Canada, and Mexico, either immediately or over a 15-year transition period. For more details on how the agreement is expected to impact the U.S. fruit industry, see "U.S. Fruit Industry and the NAFTA," by Boyd M. Buxton, *Fruit and Tree Nuts Situation and Outlook Report*, November 1992. Since that article was written, a new price-based safeguard was added to the original agreement which provides added protection for U.S. frozen concentrated orange juice (FCOJ).

If daily closing price of the FCOJ futures contract for the nearby month for 5 consecutive days fall below the previous 5-year average for that month, the United States could reimpose the most-favored-nation tariffs on FCOJ imports from Mexico. The safeguard applies after U.S. imports from Mexico annually exceed 70 million gallons (single strength equivalent) between 1994 and 2002, and exceed 90 million gallons between 2003 and 2007. The rate of tariff would revert to the original phaseout schedule if the nearby futures price exceeds the previous five-year average price for the corresponding month for each of 5 consecutive days.

Moderately Higher Fruit Prices Expected in Early 1994

Smaller crops of apples, oranges, and grapefruit are expected to result in moderately higher grower and retail prices for fresh fruit through at least the first quarter of 1994.

CPI for Fresh Fruit Higher Since July 1993

Retail fresh fruit prices were slightly lower than the year earlier during most of the first half of 1993. Larger supplies and lower prices of fresh-market apples, oranges, and bananas were reflected in the Consumer Price Index (CPI) for fresh fruit, which averaged 185 (1982-84=100) during the first 6 months of 1993, down slightly from 187 a year earlier.

But beginning in July, higher prices for some fresh summer fruits, including plums, California peaches, nectarines, cherries, grapes, and Valencia oranges, boosted the fresh fruit CPI. In September and October, higher prices for new-crop apples and late-season fresh Valencia oranges helped maintain the CPI above a year earlier. However, lower prices for bananas and strawberries have limited the upward price pressure on the index.

The CPI for processed fruit in 1993 (January-October) was below a year earlier mostly because of lower retail prices for most fruit juices, including orange and apple. However, slightly higher prices for canned and dried fruit moderated the price decline for processed fruit.

Early 1994 Fruit Prices Expected Above a Year Earlier

Reduced supplies are expected to lead to higher grower and retail prices for fresh-market apples, navel oranges, and grapefruit through at least the first quarter of 1994. However, prices that are close to last year for bananas and lower for pears are expected to moderate the rise in overall fruit prices. Prices of imported fruit also affect the CPI. Fruit growing conditions have been normal in Chile, the main U.S. supplier of offseason fruits. Ample fruit imports from Chile could moderate the expected higher U.S. retail prices in early 1994.

A smaller orange crop in Florida is expected to increase grower prices for processing oranges in 1993/94 and lead to slightly higher retail prices for orange juice. The CPI for processed fruit may creep higher into 1994 as orange juice prices increase. However, ample inventories of processed apples, pears, and strawberries should keep a lid on prices of other processed fruit. Adequate 1993/94 supplies have kept field prices for raisins the same as last year and a bit higher for processed California peaches, signaling minimal changes in retail prices.

Table 2--U.S. monthly grower price indexes, 1991-93

Month	All fruit index			Fresh fruit index		
	1991	1992	1993	1991	1992	1993
--1977=100--						
January	193	211	146	201	219	142
February	199	208	136	210	216	130
March	209	223	118	223	236	109
April	213	207	133	228	216	127
May	230	200	142	247	208	137
June	362	184	146	408	189	148
July	332	146	142	373	145	143
August	336	157	192	376	157	203
September	390	155	258	442	154	284
October	253	153	282	272	152	313
November	219	166		226	166	
December	205	162		210	161	

Source: National Agricultural Statistics Service, USDA.

Table 3--U.S. monthly consumer fruit price indexes, 1991-93

Month	Fresh fruit			Processed fruit		
	1991	1992	1993	1991	1992	1993
--1982-84=100--						
January	190	189	191	135	136	133
February	191	183	187	133	139	135
March	196	189	184	132	139	132
April	202	187	185	132	140	132
May	205	190	188	132	140	131
June	204	183	176	131	138	130
July	199	173	179	131	138	131
August	187	181	185	131	138	132
September	194	189	193	131	138	132
October	185	182	198	131	136	133
November	184	181		131	136	
December	189	182		132	135	

Frozen fruit and juice			Canned and dried fruit		
------------------------	--	--	------------------------	--	--

--1982-84=100--						
January	137	137	133	124	130	132
February	135	140	135	124	131	132
March	134	141	132	124	130	132
April	134	142	132	125	131	132
May	133	142	129	125	131	133
June	132	140	128	126	131	134
July	131	140	130	127	132	134
August	131	139	131	127	132	135
September	132	139	132	128	132	132
October	131	137	132	127	131	133
November	132	136		128	130	
December	132	135		129	131	

Source: Bureau of Labor Statistics, Department of Labor.

Table 4--U.S. monthly retail prices for selected fruits and juice, 1991-93

Month	Valencia oranges			Navel oranges			Orange juice, concentrate 1/			Grapefruit		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
--Dollars per pound--												
January	--	--	--	0.823	0.643	0.514	2.005	1.879	1.677	0.611	0.520	0.518
February	--	--	--	.930	.616	.506	1.971	1.963	1.753	.595	.513	.505
March	--	--	--	--	.563	.506	1.902	1.922	1.619	.603	.524	.495
April	--	--	--	--	.537	.521	1.909	1.976	1.627	.615	.552	.468
May	0.756	--	--	--	.573	.549	1.877	1.959	1.572	.625	.625	.447
June	.871	--	.536	--	--	--	1.848	1.933	1.587	.686	.648	.475
July	.927	0.583	.571	--	--	--	1.807	1.929	1.558	.695	.671	.529
August	.983	.568	.609	--	--	--	1.767	1.906	1.610	.676	.701	.611
September	1.053	.545	.747	--	--	--	1.756	1.877	1.626	.662	.731	.628
October	.959	.541	.808	--	--	--	1.718	1.830	1.615	.580	.731	.629
November	--	--	--	.731	.571	--	1.771	1.774	--	.544	.549	--
December	--	--	--	.652	.516	--	1.739	1.700	--	.529	.524	--
--Dollars per pound--												
Lemons			Red delicious apples			Bananas			Peaches			
1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	

--Dollars per pound--												
January	1.133	1.056	0.920	0.810	0.876	0.810	0.438	0.428	0.426	--	--	--
February	1.096	1.003	.868	.838	.886	.817	.485	.493	0.475	1.243	0.963	1.201
March	1.079	.933	.879	.843	.899	.802	.577	.517	.475	1.273	--	--
April	1.183	.921	.901	.860	.913	.802	.547	.484	.483	--	--	--
May	1.271	.981	.971	.892	.925	.815	.584	.445	.472	--	--	--
June	1.296	.988	1.058	.936	.962	.835	.532	.463	.446	.999	.933	.959
July	1.338	1.024	1.222	.956	.990	.854	.516	.432	.448	.786	.781	.829
August	1.294	1.009	1.291	.964	1.015	.904	.416	.509	.422	.693	.851	.854
September	1.288	1.144	1.341	.974	.933	.939	.432	.459	.395	.788	.945	.899
October	1.322	1.110	1.341	.846	.765	.850	.395	.442	.405	--	--	--
November	1.215	1.007	--	.839	.753	--	.431	.422	--	--	--	--
December	1.210	.904	--	.864	.764	--	.419	.404	--	--	--	--
--Dollars per pound--												
D' anjou pears			Thompson seedless grapes			Strawberries 2/						
1991	1992	1993	1991	1992	1993	1991	1992	1993				

--Dollars per pound--			--Dollars per pound--			--Dollars per 12-oz. pint--						
January	0.739	0.830	0.777	1.942	1.782	1.831	--	--	--			
February	.795	.793	.805	1.483	1.323	1.480	1.467	1.430	1.467			
March	.812	.855	.855	1.432	1.302	1.330	1.268	1.173	1.206			
April	.827	.834	.866	1.502	1.409	1.467	1.112	.960	.908			
May	.849	.839	.881	--	--	--	.976	.831	.874			
June	.976	.830	.933	--	1.370	1.406	.924	1.048	1.066			
July	--	--	--	1.376	1.017	1.338	.948	.988	1.013			
August	--	--	--	1.073	.928	1.210	.961	1.185	1.069			
September	--	--	--	1.019	.992	1.179	1.014	1.473	1.151			
October	--	--	--	1.110	1.162	1.310	1.035	1.190	1.261			
November	--	--	--	1.406	1.595	--	--	--	--			
December	.881	.803	--	1.653	--	--	--	--	--			

-- = Not applicable.

1/ Price of 12-ounce container.

2/ Dry pint.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

Table 5--U.S. monthly producer price indexes, 1991-93

Month	Grapefruit			Lemons			Navel oranges			Valencia oranges		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
--1982=100--												
January	167	149	138	157	141	146	168	101	67	142	--	--
February	171	149	130	154	136	142	179	71	64	141	--	53
March	175	158	118	145	144	154	204	64	60	135	71	49
April	153	182	121	140	182	183	207	71	67	129	71	51
May	158	189	101	162	186	223	--	87	83	135	76	53
June	236	189	121	175	193	281	207	--	--	185	46	55
July	244	189	158	184	204	293	--	--	--	--	43	58
August	--	197	158	188	213	309	--	--	69	--	44	65
September	--	222	197	193	208	315	--	--	68	--	45	91
October	169	202		176	142		--	97		148	43	
November	152	141		128	124		--	77		96	--	
December	152	143		155	144		107	74		121	--	

Orange juice			Grapefruit juice			Lemonade			Grape juice		
1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993

--1982=100--

January	114	135	92	140	159	187	147	147	147	114	119	120
February	114	135	89	138	187	162	147	147	142	114	119	120
March	112	135	88	133	193	142	147	147	142	112	118	120
April	112	134	89	130	197	137	147	147	140	114	118	120
May	111	126	89	126	203	140	144	147	140	123	119	120
June	111	119	99	125	203	147	144	147	140	123	124	--
July	111	116	105	126	203	146	144	147	138	123	124	120
August	107	115	105	125	203	146	144	147	--	119	123	120
September	107	113	105	125	203	156	144	147	138	--	125	--
October	115	107		129	204		144	147		119	125	
November	127	104		172	204		154	147		119	121	
December	132	99		157	197		146	147		119	120	

Delicious apples			McIntosh apples			Peaches			Pears		
1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993

--1982=100--

January	126	138	105	97	112	83	--	--	--	107	82	113
February	122	141	99	116	117	85	--	--	--	110	113	113
March	120	134	95	108	118	84	--	--	--	--	113	110
April	120	130	100	115	118	78	--	--	--	--	111	114
May	140	130	108	119	114	78	--	138	240	--	113	114
June	144	132	111	119	--	--	--	129	92	--	129	151
July	--	146	111	--	--	--	109	72	79	--	102	116
August	--	175	128	--	--	--	73	106	93	99	111	147
September	--	137	139	123	100	81	91	88	90	96	85	90
October	140	112		115	81		--	--		115	80	
November	143	101		115	85		--	--		106	86	
December	140	101		105	80		--	--		91	87	

-- = Not applicable.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

U.S. Citrus Crop Down 7 Percent in 1993/94

U.S. orange production is forecast lower in 1993/94 than a season earlier due to smaller crops in Florida and California. Florida grapefruit production is expected lower, but Texas output will be higher.

Total U.S. citrus production is forecast down 7 percent in 1993/94 from last year's near-record output. However, the 1993/94 citrus crop, if realized, would be the third largest since the record 16.5 million short tons harvested in 1979/80.

For the 1993/94 citrus crops, USDA forecasts lower output of oranges (10.3 million tons, down 7 percent from 1992/93), grapefruit (2.6 million tons, down 9 percent), and lemons (923,000 tons, down 1 percent). These three make up about 95 percent of U.S. citrus production. Smaller crops of other citrus fruits are also expected, including limes (8,800 tons, down 80 percent) and Temple

oranges (104,000 tons, down 8 percent). The remaining citrus crops will likely be larger than last year, including tangerines (316,000 tons, up 26 percent), Tangelos (140,000 tons, up 2 percent) and K-Early citrus (9,000 tons, up 8 percent).

Weather in the citrus growing regions has been generally favorable thus far in the 1993/94 season. Florida groves, trees, and new crop fruit remained in good to excellent condition through October. Abundant moisture and warm temperatures proved nearly ideal for fruit growth. Citrus trees in Texas, Arizona, and California were reported to be in good condition in October.

Table 6--Citrus fruit: Utilized production by crop, State, and United States, 1990/91-1993/94 1/

Crop and State	1990/91	1991/92	1992/93	Indicated 1993/94	1990/91	1991/92	1992/93	Indicated 1993/94
	--1,000 boxes 2/--				--1,000 short tons--			
All oranges:	178,950	209,610	257,660	239,490	7,848	8,909	11,062	10,274
Arizona	1,750	2,380	1,850	2,000	65	89	69	75
California	25,600	67,400	68,800	65,000	961	2,528	2,579	2,438
Florida	151,600	139,800	186,500	172,000	6,822	6,291	8,392	7,740
Texas	3/	30	510	490	3/	1	22	21
All grapefruit:	55,500	55,265	68,675	4/	2,256	2,224	2,801	2,563
Arizona	2,400	2,800	2,150	2,200	77	89	69	70
California	8,000	10,000	9,500	4/	262	329	313	4/
Florida	45,100	42,400	55,150	49,000	1,917	1,803	2,344	2,084
Texas	3/	65	1,875	2,700	3/	3	75	108
All lemons:	18,900	20,200	24,500	24,300	719	766	930	923
Arizona	4,100	5,100	4,400	4,300	156	193	167	163
California	14,800	15,100	20,100	20,000	563	573	763	760
Limes:								
Florida	1,450	1,600	1,000	200	64	70	44	9
Tangelos:								
Florida	2,650	2,600	3,050	3,100	119	117	137	140
All tangerines:	3,900	6,240	5,950	7,400	166	260	251	316
Arizona	600	1,200	950	1,100	23	45	35	41
California	1,350	2,440	2,200	2,500	51	92	83	94
Florida	1,950	2,600	2,800	3,800	92	123	133	181
Temples:								
Florida	2,500	2,350	2,500	2,300	113	106	113	104
K-early citrus:								
Florida	--	--	185	200	--	--	8	9
U.S. total citrus					11,285	12,452	15,346	14,338

-- = Not available.

1/ The crop year begins with bloom of the first year shown and ends with harvest.

2/ Net pounds per box: oranges-California and Arizona-75; Florida-90; Texas-85; grapefruit-California desert and Arizona-64; California other areas-67; Florida-85; Texas-80; lemons-76; limes-88; tangerines-California and Arizona-75; Florida-95; tangelos and temples and K-early citrus-90.

3/ Due to the severe freeze of December 1989, Texas had no commercial production for the 1990/91 season.

4/ The first forecast for California grapefruit "other areas" will be available April 1, 1994. Total based on average "other areas" production grapefruit.

Source: National Agricultural Statistics Service, USDA.

U.S. Orange Crop and Juice Output Expected To Decline in 1993/94

A smaller U.S. orange crop is expected to reduce 1993/94 U.S. orange juice production by 10 percent. Grower prices for processed oranges will likely increase from last year's lows.

The 1993/94 U.S. orange crop is forecast at 10.3 million short tons, down 7 percent from last year's bumper crop. Smaller crops are expected in Florida and California. The October USDA forecast pegged 1993/94 Florida orange production at 172 million 90-pound boxes, down 8 percent from last year. Both the early and mid-season varieties and Valencias are forecast down, 6 percent and 11 percent, respectively. California orange output is expected to be down 6 percent, with the navel crop off 13 percent and Valencias up 8 percent.

Because of weather fluctuations in Florida last spring, the bloom period for this season was more prolonged than in any recent year. A mid-March 1993 storm interrupted the bloom. Also, high winds and moisture were probably responsible for increasing the spread of bloom blight fungus. Some orchards experienced severe damage while others were unaffected. A second factor related to the smaller crop was the timing of rainfall following the bloom, which was slightly less favorable than the previous year. These weather conditions resulted in a smaller total crop despite more bearing orange trees. The number of bearing trees for 1993/94 is forecast at 62.3 million, up almost 10 percent from last season. The number is expected to increase again next year. Thus, a very large 1994/95 Florida orange crop is possible if growing conditions are favorable.

U.S. Orange Juice Production Lower in 1993/94

U.S. orange juice production is expected to decline 10 percent in 1993/94 from the record set last year, primarily because of a smaller Florida orange crop and slightly

lower juice yields. ERS forecasts U.S. orange juice production at 1.1 billion gallons (single strength equivalent) in 1993/94. The forecast includes about 95 million gallons from California, Arizona, and Texas. Because higher beginning stocks will partially offset lower production, the U.S. orange juice supply is expected down only 3 percent from 1992/93.

The Florida frozen concentrated orange juice (FCOJ) yield is expected to be 1.55 gallons (42 degrees Brix) per box, 2 percent below the record set last year, but 6 percent above the 5-year average. The final component of calculating orange juice production is the percent of

Figure 3

Florida Oranges Production, Use, and On-Tree Price

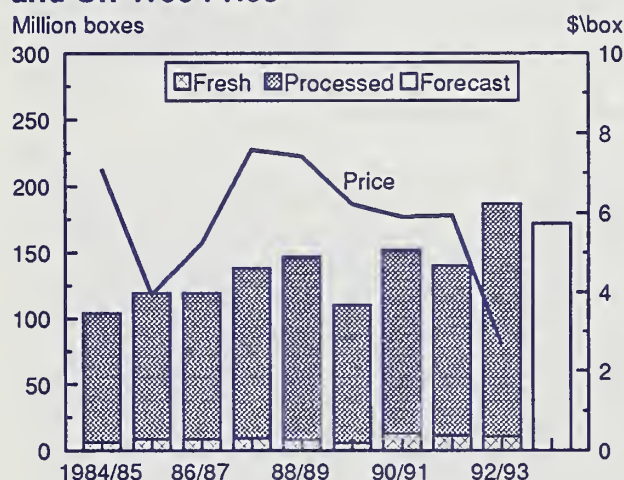


Table 7--Estimated utilization of round oranges, Florida, 1986/87-1993/94 1/

Item	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	Forecast 1993/94
--Million 90-lb boxes--								
Fresh	8.5	8.9	7.7	5.2	11.4	10.3	9.4	9.0
Frozen concentrate	90.5	103.9	107.4	70.1	100.4	90.6	128.3	110.0
Chilled juice	19.2	23.6	29.5	33.5	38.2	37.0	47.2	51.5
Canned juice	0.9	0.8	1.1	0.6	0.6	0.5	0.3	0.2
Blends	0.1	0.1	2/	2/	2/	2/	2/	2/
Non-certified	0.5	0.7	0.9	0.8	1.0	1.4	1.3	1.3
Total	119.7	138.0	146.6	110.2	151.6	139.8	186.5	172.0

1/ The total used in processed products does not agree exactly with the utilization reported by the Florida Citrus Processors Association because their orange utilization report includes some specialty fruit.

2/ Less than 50,000 boxes.

Source: Florida Department of Citrus.

Florida oranges processed. This depends upon fruit quality and relative prices between the fresh and processed markets. About 92-94 percent of the Florida orange crop is typically sent to processors. If the production and yield forecasts and other assumptions are realized, U.S. orange juice production in 1993/94 would be the third largest on record, behind last year's production and the previous record set in 1979/80.

Assuming a freeze-free winter in Florida, FCOJ imports are expected to remain low. Brazil harvested a smaller 1993 orange crop, and juice production (available for export beginning in July 1993) will slip 11 percent, but higher beginning stocks will offset part of the decline. FCOJ exports from Brazil to the world are expected to decrease 6 percent.

OJ Prices Lower, Consumption Higher in 1993

Record high U.S. orange juice (OJ) production in 1992/93 led to lower prices and higher consumption. According to Nielsen Scanner data, retail prices for orange juice (all forms) were 12 percent lower in 1993 (January-August) than in 1992 (January-August). Consequently, cumulative retail gallon sales (supermarkets with annual sales exceeding \$4 million) increased 11 percent during the same period. Monthly volume sales have declined seasonally since the peak in March, but remain well above the year earlier.

Retail Prices To Drift Higher

Although remaining below a year earlier, prices for orange juice adjusted upward during the spring and summer because of prospects for smaller orange crops in Florida and Brazil. Orange juice futures for near-term futures contracts on the New York Cotton Exchange bottomed out in February 1993, followed by wholesale bulk FCOJ in March and April, and retail orange juice in May. By September 1993, the futures price and price for wholesale bulk FCOJ had risen and were near the year earlier, but retail prices were about 15 percent lower than in September 1992. Wholesale prices for bulk FCOJ stayed even in October. Because of the higher price of juice in the pipeline and smaller total juice supplies, modest increases in retail orange juice prices are expected for the remainder of 1993 and in 1994.

The futures price climbed higher in September and early October, but dropped following USDA's orange forecast, suggesting that the market had expected an even smaller Florida crop. In mid-November, the futures price was up about 18 percent from a year ago.

Grower Prices Expected Up in 1993/94

Because of the smaller crop and reduced orange juice supplies, U.S. grower prices for processing oranges in Florida are expected to increase in 1993/94 from last season's very low levels. The bumper orange crop in 1992/93 lowered grower prices for processing oranges in Florida. Prices averaged \$2.60 per 90-pound box (on-tree), down 54 percent from 1991/92 and the lowest since 1976-77.

Figure 4

Orange Juice: Near-Term Futures Contract Prices

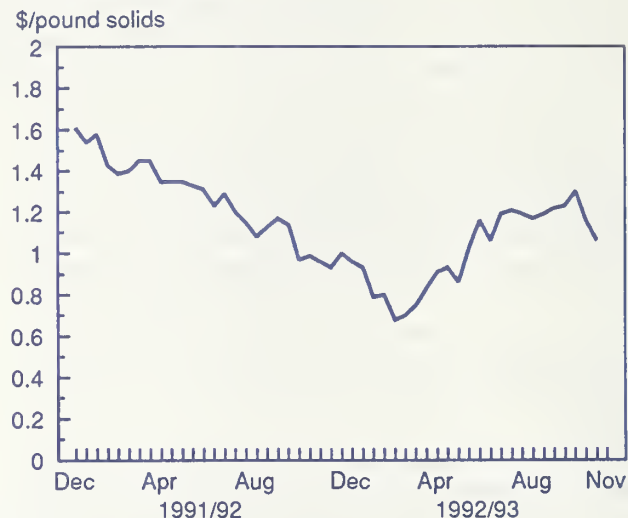


Figure 5

Florida F.o.b. Prices for Bulk FCOJ

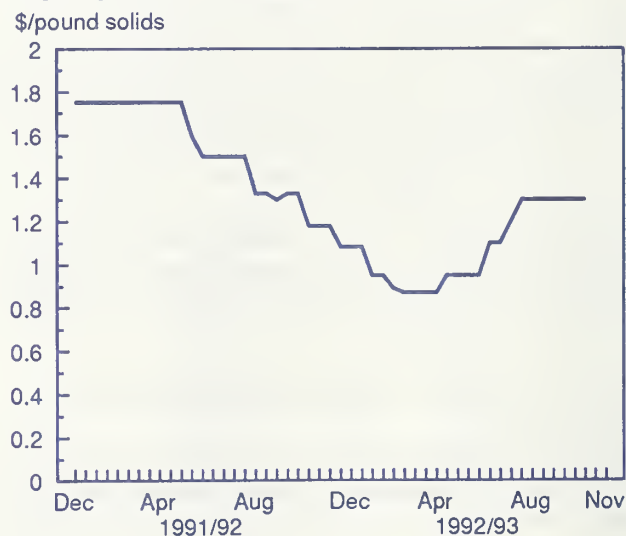


Figure 6

U.S. Average Retail Price for FCOJ

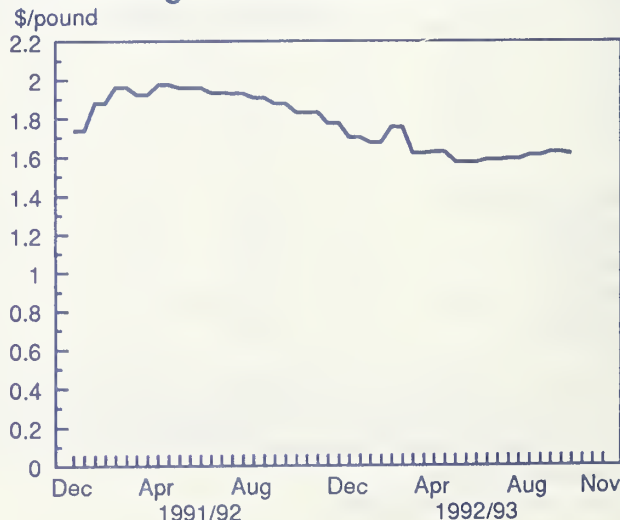


Table 8--United States: Orange juice supply and utilization, 1985/86-1993/94

Season 1/	Beginning stocks	Production	Imports	Supply	Exports	Domestic consumption	Ending stocks 2/
--Million SSE gallons 3/--							
1985/86	249	683	546	1,479	71	1,204	204
1986/87	204	781	557	1,542	73	1,267	201
1987/88	201	907	416	1,524	90	1,223	212
1988/89	212	970	383	1,564	98	1,234	232
1989/90	232	652	492	1,377	90	1,062	225
1990/91	225	876	327	1,428	96	1,174	158
1991/92	158	923	286	1,367	108	1,107	152
1992/93 p	152	1,216	266	1,634	130	1,274	230
1993/94 f	230	1,097	250	1,577	135	1,200	242

p = preliminary. f = forecast.

1/ Season begins in December of the first year shown.

2/ Data may not add due to rounding.

3/ SSE = single-strength equivalent.

Source: Economic Research Service, USDA.

Figure 7

Orange Juice: Production and Imports

Gallons single-strength

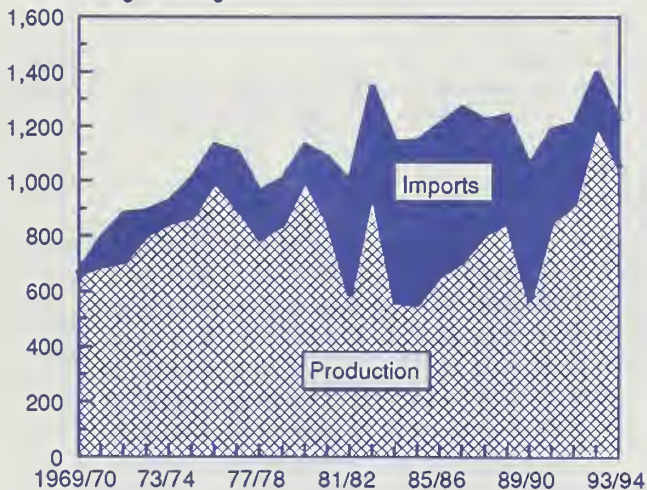
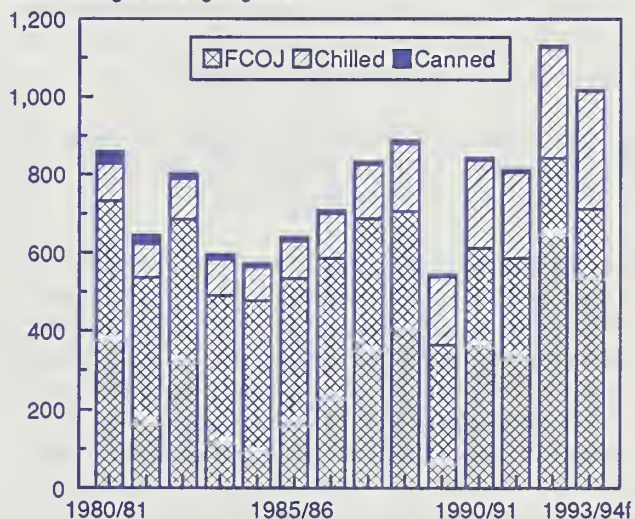


Figure 8

Orange Juice Packed from Florida Fruit

Million single-strength gallons



California Navel Orange Crop Down in 1993/94

A smaller California navel orange crop will likely push grower and retail navel orange prices higher in 1993/94. The first forecast calls for a larger California Valencia orange crop, which may dampen orange prices next summer.

The California orange crop, which is mostly sent to the fresh market, is expected to total 2.44 million short tons in 1993/94, down 6 percent from a year earlier. A smaller California navel crop will more than offset a larger Valencia crop.

California navel orange production is forecast at 1.43 million tons in 1993/94, down 13 percent from 1992/93. Quality is generally good with a favorable distribution of orange sizes, including many oranges of size 72, 88, and 113 (fruit per carton) which are popular in the fresh market. Consequently, a higher proportion of the crop may be sent to the fresh market. Volume controls on the California-Arizona navel crop were suspended for the 1993/94 season. Therefore, shippers are not restricted on the weekly amount sold in the fresh domestic market (see August 1993 *Fruit and Tree Nuts*, p. 28).

California Valencia output is forecast at 1.01 million tons in 1993/94, up 8 percent from 1992/93. Harvest will begin next spring and continue into summer.

Arizona oranges, like California, are grown primarily for the fresh market. Output is expected to total 75,000 tons in 1993/94, up 9 percent from 1992/93.

The Florida orange crop, which mostly is processed into juice, is forecast at 7.74 million tons in 1993/94, down 8 percent from the previous season. In 1992/93, 6 percent of the crop was sent to the fresh market in 1992/93 and 8 percent in 1991/92. Florida shipments began in the last week of September, one week earlier than last year. From September through October 24, 1993, fresh market orange shipments from Florida were nearly the same as a year earlier. Prices have been running higher.

Grower Prices Expected To Rise in 1993/94

The smaller navel crop will likely lead to higher grower and retail prices for fresh oranges through next spring. The season-average f.o.b. price for California fresh-market navels was \$7.30 per 37 1/2 pound carton in 1992/93, down from \$8.50 in 1991/92. In the last week of October, f.o.b. prices averaged \$11.63 per carton for California navels, up 22 percent from a year earlier.

Lower prices for summer oranges (Valencias) are expected if the production forecast is realized. In 1992/93, the season-average f.o.b. price for California fresh-market Valencias was forecast at \$7.95 per 37 1/2 pound carton (packinghouse door), up from \$6.75 in 1991/92.

Fresh-market Orange Exports Expected Down in 1993/94

In 1992/93, larger fresh market orange supplies and lower prices led to forecast record exports of 610,000 short tons. From November 1992 to August 1993, shipments to foreign markets totalled 470,229 short tons, up 15 percent from the same period a year earlier. However, weak demand in Japan resulted in lower exports to United States' second largest market. Exports to Hong Kong, the next largest market, were up one-third.

Smaller California navel production and higher prices may lower total U.S. orange exports in 1993/94. Demand in Canada and Hong Kong is expected to remain good while demand in Japan remains sluggish in 1993/94.

Figure 9

California Orange Production, Use, and On-Tree Price

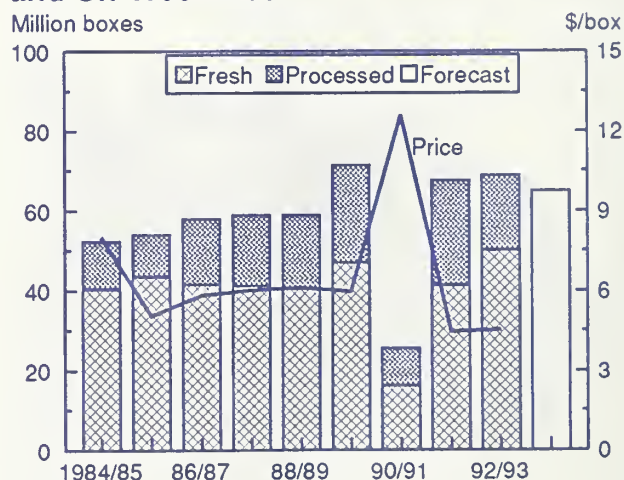


Table 9--Fresh-market oranges: Supply and Utilization, 1989/90-1993/94

Season 1/	Supply			Utilization	
	Fresh utilization 2/	Imports	Total supply	Exports	Domestic consumption
--1,000 short tons--					
1989/90	2,109.3	13.2	2,122.4	576.1	1,546.3
1990/91	1,256.8	68.7	1,325.4	257.2	1,068.3
1991/92	2,175.5	17.3	2,192.8	545.9	1,646.9
1992/93p	2,481.0	10.0	2,491.0	610.0	1,881.0
1993/94f	2,350.0	12.0	2,362.0	590.0	1,772.0

p = preliminary. f = forecast.

1/ Marketing season begins in November of the first year shown.

2/ Includes temples.

Source: Economic Research Service, USDA.

Table 10--Oranges: Utilized production, United States, 1990/91-1993/94 1/

Crop and State	1990/91	1991/92	1992/93	Indicated 1993/94	1990/91	1991/92	1992/93	Indicated 1993/94
	--1,000 boxes 3/--				--1,000 short tons--			
Early, midseason, and navels 2/:	103,850	119,300	159,250	147,170	4,550	5,100	6,831	6,331
Arizona	550	780	700	800	20	29	26	30
California	15,800	35,100	43,800	38,000	593	1,317	1,642	1,425
Florida	87,500	83,400	114,300	108,000	3,937	3,753	5,143	4,860
Texas	4/	20	450	370	4/	1	20	16
Valencias:	75,100	90,310	98,410	92,320	3,298	3,809	4,231	3,943
Arizona	1,200	1,600	1,150	1,200	45	60	43	45
California	9,800	32,300	25,000	27,000	368	1,211	937	1,013
Florida	64,100	56,400	72,200	64,000	2,885	2,538	3,249	2,880
Texas	4/	10	60	120	4/	5/	2	5

1/ The crop year begins with bloom of the first year shown and ends with harvest.

2/ Navel and miscellaneous varieties in California and Arizona. Early and midseason varieties in Florida and Texas, including small quantities of tangerines in Texas.

3/ Net pounds per box: oranges-California and Arizona-75; Florida-90; and Texas-85.

4/ Due to the severe freeze of December 1989, Texas had no commercial production for the 1990/91 season.

5/ Texas estimated at 425 tons.

Source: National Agricultural Statistics Service, USDA.

Table 11--Oranges: Average monthly equivalent on-tree prices received by growers, California, 1990-93

Month	Fresh oranges				Processing oranges				All oranges			
	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
--Dollars per 75-lb box--												
January	7.87	23.80	11.53	6.48	1.18	-0.89	0.04	-2.35	6.70	6.09	9.68	4.66
February	7.77	27.25	7.93	5.98	1.90	-0.89	0.04	-2.35	6.27	7.74	6.35	3.86
March	7.21	26.10	6.84	5.72	2.16	-0.96	-0.14	-2.36	5.56	14.23	5.07	3.44
April	6.94	30.59	7.06	6.74	2.16	-1.32	-0.54	-2.39	5.20	19.70	4.55	3.97
May	9.39	28.02	7.41	6.56	2.40	-0.95	-0.62	-2.27	6.87	20.37	4.32	4.07
June	9.43	27.42	5.65	6.45	2.42	-0.95	-0.67	-1.99	6.67	19.79	2.74	4.23
July	9.08	26.22	4.89	7.55	1.98	-0.95	-0.90	-2.01	5.75	17.68	1.74	4.78
August	7.88	27.32	4.59	8.25	0.78	-1.15	-1.32	-1.57	4.38	18.73	0.92	5.44
September	8.28	28.82	4.59	15.25	0.58	-1.15	-1.52	-1.57	4.48	21.39	0.94	10.52
October	6.89	27.02	6.46	5.63	0.54	-0.95	-1.61	-2.18	3.92	20.69	2.27	2.42
November	11.60	16.73	8.12		-0.85	-0.52	-1.94		9.59	14.29	5.34	
December	11.20	12.93	7.38		-0.89	-0.34	-2.35		9.12	11.01	5.71	

Source: National Agricultural Statistics Service, USDA.

Table 12--Oranges: Average monthly equivalent on-tree prices received by growers, Florida, 1990-93

Month	Fresh oranges				Processing oranges				All oranges			
	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
--Dollars per 90-lb box--												
January	13.93	11.00	6.90	2.55	5.70	5.30	5.35	2.20	5.82	5.51	5.40	2.21
February	13.89	8.71	7.17	2.80	5.50	5.52	5.70	2.20	5.69	5.93	5.86	2.21
March	13.15	8.40	6.10	1.80	6.00	6.27	6.25	2.50	6.26	6.45	6.24	2.45
April	13.45	8.40	6.10	2.20	7.15	6.48	6.65	3.20	7.31	6.63	6.62	3.16
May	15.65	9.10	7.10	2.90	6.95	6.50	7.00	3.50	7.10	6.76	7.00	3.48
June	--	--	10.60	5.10	--	--	7.40	3.70	--	--	7.66	3.76
July	--	--	--	--	--	--	--	--	--	--	--	--
August	--	--	--	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	--	--	--	--
October	7.10	11.60	--	13.90	5.40	3.30	--	1.90	5.70	8.47	--	11.89
November	6.70	9.40	5.70		5.11	3.99	1.70		5.23	5.24	2.53	
December	8.80	8.70	4.80		4.96	4.90	2.20		5.27	5.18	2.41	

Source: National Agricultural Statistics Service, USDA.

U.S. Grapefruit Crop Down in 1993/94

A smaller U.S. grapefruit crop will likely lead to higher grower prices for fresh-market grapefruit in 1993/94. Last year, a large crop and weak export demand resulted in low grower prices.

USDA's first grapefruit forecast indicates an 9-percent-smaller crop than in 1992/93, but 3 percent higher than the 3-year average. Florida is the largest grapefruit-producing State, with 81 percent of the forecast U.S. total in 1993/94. The remaining States include California, 12 percent; Texas, 4 percent; and Arizona, 3 percent.

Florida expects to harvest 2.08 million tons in 1992/93, down 11 percent from last year's record. The grapefruit crops are expected to be down for all three types (white seedless, colored seedless, and seedy). Grapefruit sizes are quite variable this season because of the extended bloom period. An unusual March storm did not affect the size of the Florida crop, but winds from the storm did scuff the peel of some newly forming grapefruits. High sugar content, especially in the early season fruit, is expected to result in good-eating fresh Florida grapefruit in 1993/94.

The first forecast for the California desert grapefruit crop is 112,000 tons, unchanged from last season. Exceptional fruit quality has been reported. Most of these grapefruit are usually marketed from mid-November through mid-July. The first official USDA forecast for California grapefruit "Other Areas," marketed from March through October, will be in April 1994.

The 1993/94 Arizona grapefruit crop is forecast at 70,000 tons, up 2 percent from last year. Texas grapefruit production is forecast to reach 108,000 tons, up 44 percent

from last season. The Texas grapefruit industry is gaining momentum following severe freezes in the 1980's.

Prices Expected Higher in 1993/94

In 1992/93, a record-large Florida crop and weak demand in Japan, a major export market, led to lower grower prices in all U.S. grapefruit producing States. The U.S. average grower price for all grapefruit was \$4.28 per box (packing-house door), down 46 percent and the lowest since the early 1980s. Average prices for grapefruit (fresh and processed) were lower in all states, even in Arizona and California where the crops were nearly the same size as (or smaller than) the year before. Grower prices are expected to average higher than in 1992/93, but most likely not higher than the 1991/92 average of \$7.89 per box.

Export Demand Weak in 1992/93

U.S. exports of fresh grapefruit totalled 486,206 short tons in 1992/93 (September/August), down 4 percent from the year before. Lower export prices were not sufficient to spur higher shipments. Demand in Japan and the European Community was weak during the 1992/93 season because of a downturn in their economies and ample availability of domestic fruit. In 1993/94, export demand is expected to remain the same because of continued sluggish economic prospects for these major grapefruit markets.

Figure 10

U.S. Grapefruit Production, Use, and On-Tree Price

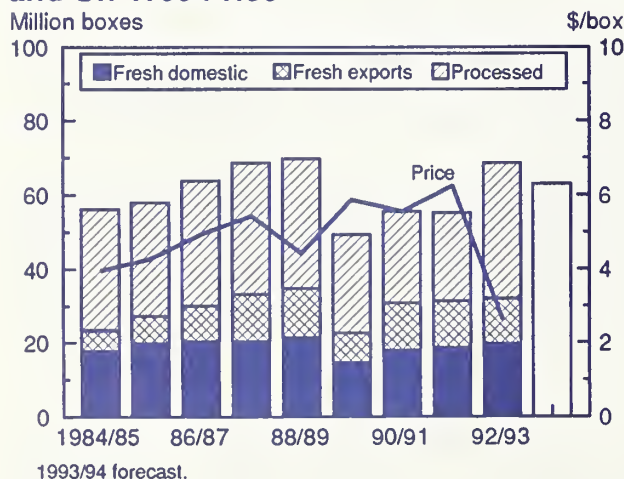


Table 13--Fresh grapefruit: Supply and Utilization, 1985/86-1993/94

Season 1/	Supply			Utilization	
	Fresh utiliz- ation	Imports	Total supply	Exports	Domestic consump- tion
--1,000 short tons--					
1985/86	1,085	3	1,087	353	734
1986/87	1,198	2	1,200	436	764
1987/88	1,330	6	1,336	523	813
1988/89	1,393	4	1,397	587	810
1989/90	883	5	888	337	550
1990/91	1,242	8	1,251	513	738
1991/92	1,250	12	1,262	506	756
1992/93p	1,279	12	1,291	486	805
1993/94f	1,306	12	1,318	500	818

p = preliminary. f = forecast.

1/ Marketing season begins in September of the first year shown.

Source: Economic Research Service, USDA.

Table 14--Grapefruit: Utilized production, United States, 1990/91-1993/94 1/

Crop and State	Indicated				Indicated			
	1990/91	1991/92	1992/93	1993/94	1990/91	1991/92	1992/93	1993/94
	--1,000 boxes 2/--				--1,000 short tons--			
Florida	45,100	42,400	55,150	49,000	1,917	1,803	2,344	2,084
Seedless	43,500	41,200	53,400	48,000	1,849	1,752	2,270	2,041
Colored	21,800	22,100	27,700	25,000	927	940	1,177	1,063
White	21,700	19,100	25,700	23,000	922	812	1,093	978
Other	1,600	1,200	1,750	1,000	68	51	74	43
Arizona	2,400	2,800	2,150	2,200	77	89	69	70
California	8,000	10,000	9,500	3/	262	329	313	3/
Desert Valley	3,500	3,500	3,500	3,500	112	112	112	112
Other areas	4,500	6,500	6,000	3/	150	217	201	3/
Texas	4/	65	1,875	2,700	4/	3	75	108

1/ The crop year begins with bloom of the first year shown and ends with harvest.

2/ Net pounds per box: California desert and Arizona-64; California other areas-67; Florida-85; and Texas-80.

3/ The first forecast for California grapefruit "other areas" will be available April 1, 1994.

4/ Due to the severe freeze of December 1989, Texas had no commercial production for the 1990/91 season.

Source: National Agricultural Statistics Service, USDA.

Table 15--Estimated utilization of Florida grapefruit, 1989/90-1993/94

Item					Forecast
	1989/90	1990/91	1991/92	1992/93	1993/94
	-- Million 85-lb boxes --				
Fresh	12.9	23.2	21.9	22.1	23.5
Canned	1.0	0.8	0.6	0.5	0.4
Frozen concentrate	19.4	17.4	16.1	26.6	17.7
Chilled juice	1.2	2.1	2.4	4.5	6.0
Blends	0.7	0.8	0.4	0.4	0.4
Non-certified	0.5	0.8	1.0	1.1	1.0
Total	35.7	45.1	42.4	55.2	49.0

Source: Florida Department of Citrus.

Table 16--Grapefruit: Average monthly equivalent on-tree prices received by growers, Florida, 1990-93

Month	Fresh grapefruit				Processing grapefruit				All grapefruit			
	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
	--Dollars per 85-lb box--											
January	10.98	9.10	7.96	4.06	2.89	2.17	4.20	1.69	4.87	5.71	6.04	2.92
February	12.19	8.75	9.04	4.68	3.12	2.33	4.51	0.70	4.84	4.73	6.22	2.46
March	13.42	9.82	9.92	4.09	3.85	2.15	4.65	0.70	6.57	5.72	7.23	1.56
April	9.77	9.62	10.07	4.58	4.50	1.57	4.93	0.84	6.04	5.88	8.14	1.99
May	--	7.73	--	3.21	--	1.36	--	0.99	--	4.72	--	1.62
June	--	--	--	3.00	--	--	--	0.60	--	--	--	1.53
July	--	--	--	--	--	--	--	--	--	--	--	--
August	--	--	--	--	--	--	--	--	--	--	--	--
September	8.97	10.15	--	--	1.29	2.05	--	--	7.69	9.19	--	--
October	8.97	7.99	7.41	10.22	1.92	2.23	0.06	0.16	7.17	6.67	6.15	8.60
November	8.36	8.10	5.38	--	2.05	3.24	1.46	--	6.35	6.55	4.32	--
December	7.45	7.72	5.28	--	2.19	3.67	1.79	--	5.34	6.15	3.94	--

Source: National Agricultural Statistics Service, USDA.

Lemon Production Down Slightly in 1993/94

A slightly smaller California-Arizona lemon crop is expected to result in grower prices near or slightly higher than last year. Fresh market lemon consumption and exports have been relatively stable for the last several years.

The U.S. lemon crop is forecast at 923,000 short tons in 1993/94, down less than 1 percent from a year earlier, but 20 percent more than the 1991/92 crop. The 1993/94 California crop is forecast at 760,000 tons, down less than 1 percent from a year earlier. Arizona expects to harvest 163,000 tons, down 2 percent. Good quality has been reported in California and Arizona.

A few lemons are produced in Florida, but the crop is not reported by the National Agricultural Statistics Service (NASS). Florida has less than 1,000 acres of lemons.

Grower Prices Steady in 1993/94

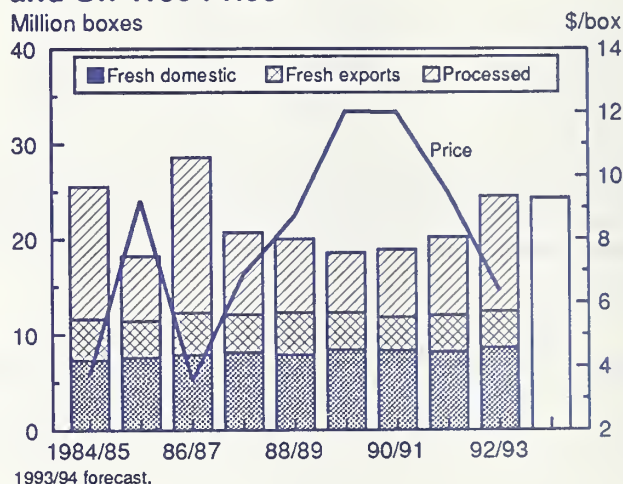
The bumper lemon crop led to lower grower prices in 1992/93, which averaged \$9.86 per box (packinghouse door), down from \$12.94 in 1991/92. However, lemon prices rose toward the end of the season (summer of 1993). The higher lemon prices carried into the 1993/94 season (beginning August 1) as total season-to-date shipments (through mid-October) lagged 22 percent from a year earlier. During the same period, the weighted average f.o.b. price for California-Arizona lemons, as reported by the Lemon Administrative Committee, was \$14.52 per 38 pound carton, up from \$10.25 for the same period last year. By mid-October, about 13 percent of the 1993/94 crop had been picked, compared with 16 percent a year earlier. Depending upon the total crop size, grower prices in 1993/94 are expected to be near year earlier levels or slightly higher.

Lemon Consumption, Exports Stable

U.S. fresh-market-lemon consumption and exports have been stable in recent years. Since 1986, per capita con-

Figure 11

U.S. Lemon Production, Use, and On-Tree Price



sumption of fresh-market lemons has ranged from 2.4 to 2.6 pounds. Exports have averaged about 160,000 tons, or about one-third of the fresh market utilization.

In 1992/93, despite a 21 percent larger crop and lower prices, the industry only shipped 3 percent more fresh market lemons (domestic and export). Consequently, processing utilization shot up almost 50 percent. Because fresh-market lemons receive a much higher price than processed, growers receive more than 90 percent of their revenue from fresh market sales.

Table 17--Lemons: Average monthly equivalent on-tree prices received by growers, United States, 1990-93

Month	Fresh lemons				Processing lemons				All lemons			
	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
--Dollars per 76-lb box--												
January	12.83	24.65	10.65	8.91	0.24	-1.28	-1.64	-1.46	8.67	7.32	4.22	3.10
February	15.42	18.74	10.41	9.14	0.38	-1.28	-1.70	-1.46	9.89	9.77	3.97	2.94
March	17.03	18.44	12.01	10.69	0.44	-1.28	-1.78	-1.46	10.24	13.98	6.00	2.94
April	17.53	22.10	14.04	12.45	0.44	-1.28	-1.78	-1.40	11.19	17.70	7.05	3.98
May	18.13	25.40	14.31	16.41	0.44	-1.28	-1.78	-1.40	12.20	20.69	7.47	8.13
June	19.33	24.30	15.61	23.51	0.44	-1.28	-1.70	-1.40	13.24	18.47	8.99	15.02
July	20.03	30.60	16.11	28.21	0.52	-1.28	-1.70	-1.54	13.40	22.04	9.24	19.58
August	17.20	29.61	17.07	31.51	0.24	-1.50	-1.74	-1.54	10.90	20.19	10.03	23.62
September	18.15	31.06	18.04	29.91	0.30	-1.50	-1.74	-1.54	12.52	23.03	12.18	20.09
October	17.17	25.98	8.84	29.20	0.30	-1.50	-1.74	-1.65	11.20	20.38	4.63	21.23
November	8.53	20.13	6.12		-0.04	-1.78	-1.46		4.84	12.54	2.61	
December	8.29	9.94	8.52		-0.94	-1.70	-1.46		3.05	4.73	3.02	

Source: National Agricultural Statistics Service, USDA.

U.S. Lime Production Remains Low

Lime production has been severely curtailed in Florida following the August 1992 hurricane. Since then, increased imports have filled U.S. demand.

Florida lime production in 1993/94 (beginning in April) is low following tree damage from the August 1992 hurricane. Since April 1993, monthly fresh lime shipments have been less than 20 percent of the year earlier. Only young trees have recovered from the storm which crossed Florida's primary lime growing region in southern Dade County.

Because the majority of the season was over before the devastating storm, total fresh lime shipments in 1992/93 were down only about one-fourth from the 3-year average. Lower lime prices prior to the storm, coupled with reduced production after the storm, resulted in sharply reduced grower returns of \$6.5 million in 1992/93, about 25 percent of the 3-year average and the lowest since 1974/75 when production was much lower.

Imports Compensate for Loss of Florida Supplies

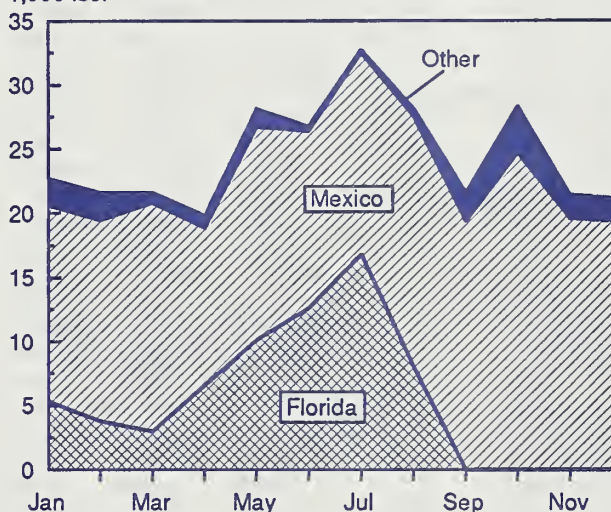
Although growers suffered severe losses, imports have been providing consumers with adequate supplies of limes. Even before the storm, imports were a substantial share of U.S. consumption (two-thirds in 1991/92). Mexico, the primary supplier, is a large producer of limes and boosted lime shipments immediately following the storm. Total monthly supplies of limes in the United States were lower during December 1992 through March 1993 compared with year earlier totals. However, since April 1993, monthly lime supplies (Mexico plus Florida) were about the same as last year.

Prices of the imported limes during the winter and early spring of 1993 rose substantially above the year earlier when imports were lower. But when Mexico started shipping larger quantities in May, prices declined from more than \$7 (10-pound carton, f.o.b. southern Texas) to \$2-3. Prices through October remained near year-ago levels.

Figure 12

Origin of Lime Shipments in the United States, 1992

1,000 lbs.



Although some replanting and rejuvenating of the Florida lime groves has occurred, future returns to lime production in Florida may not be as favorable as other crops, especially because Mexico and others already supply most of the U.S. lime market. Consequently, it is doubtful that Florida lime production will return to pre-storm levels. Some growers have replanted some former lime groves to commercial vegetables or specialty fruits and vegetables.

Limes are also produced in California, but represent only about 3 percent of U.S. supply. The United States also imports some limes from Central American, South American, and Caribbean countries.

Table 18--Limes: Average monthly equivalent on-tree prices received by growers, Florida, 1990-93

Month	Fresh limes				Processing limes				All limes			
	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
--Dollars per 88-lb box--												
January	40.80	32.90	21.90	--	--	-2.65	-2.60	--	40.80	21.05	17.92	--
February	68.80	44.90	33.90	--	--	-2.65	-2.60	--	68.80	31.69	25.35	--
March	49.80	55.90	23.50	--	--	-2.65	--	--	49.80	40.69	23.50	--
April	41.50	39.50	8.60	--	--	--	-2.80	--	41.50	39.50	6.87	--
May	28.50	7.90	2.60	--	--	-2.60	-2.80	--	28.50	6.76	1.57	--
June	4.40	-0.10	-1.40	--	0.55	-0.40	-2.80	--	3.01	-0.24	-1.97	--
July	2.40	3.90	1.60	--	-0.40	-0.40	-1.30	--	1.47	1.49	0.81	--
August	16.90	10.90	3.10	20.60	-0.90	-0.40	-1.30	-0.30	8.54	6.40	2.22	16.58
September	19.90	16.90	3.60	20.60	-0.90	-2.60	-1.30	-0.30	9.20	12.57	2.81	17.00
October	23.90	18.90	--	9.60	-2.65	-2.60	--	-1.80	12.55	14.23	--	6.43
November	24.90	17.90	--	--	-2.65	-2.60	--	--	11.53	14.65	--	--
December	32.90	23.90	--	--	-2.65	-2.60	--	--	20.35	18.84	--	--

Source: National Agricultural Statistics Service, USDA.

Table 19--Citrus fruit: Season-average equivalent on-tree returns received by growers, by State, variety, and use, 1990/91-1992/93

Variety and State	Fresh			Processing			All		
	1990/91	1991/92	1992/93	1990/91	1991/92	1992/93	1990/91	1991/92	1992/93
--Dollars per box 2/--									
ORANGES:									
Florida	8.46	8.52	3.80	5.66	5.69	2.60	5.89	5.93	2.67
Early and midseason	8.30	9.40	4.50	5.17	5.03	2.15	5.38	5.44	2.29
Valencia	8.60	6.70	2.50	6.35	6.65	3.30	6.58	6.65	3.26
California	20.44	7.85	7.02	-0.94	-0.89	-2.19	12.59	4.47	4.53
Navel and miscellaneous	14.90	9.23	6.68	-0.89	-0.31	-2.33	8.30	6.89	6.68
Valencia	27.72	5.39	7.65	-1.05	-1.18	-1.98	19.50	1.84	4.76
Arizona	20.08	6.53	4.20	-1.14	-0.58	-2.46	16.05	4.82	2.93
Navel and miscellaneous	13.50	10.93	7.28	-0.89	-0.23	-2.35	11.85	9.47	5.64
Valencia	23.52	3.89	2.25	-1.20	-0.66	-2.52	17.98	2.55	1.28
Texas	3/	12.77	6.94	3/	--	3.00	3/	12.77	6.46
Early and midseason	3/	13.38	7.08	3/	--	3.01	3/	13.38	6.54
Valencia	3/	11.50	6.01	3/	--	2.46	3/	11.50	5.90
United States 1/ Early, midseason, and navel	14.92	7.97	6.32	5.29	4.72	2.20	6.79	5.50	3.11
Valencia	12.05	9.31	6.26	4.78	4.56	1.79	5.79	5.84	2.82
	18.00	5.60	6.43	6.03	4.92	2.84	8.17	5.06	3.57
GRAPEFRUIT:									
Florida	8.83	8.69	4.86	2.08	4.20	0.92	5.66	6.62	2.57
Seedless	8.83	8.69	4.86	1.93	4.18	0.88	5.73	6.68	2.61
Seeded	4/	4/	4/	3.93	4.57	1.53	3.93	4.57	1.53
Texas	3/	13.52	6.57	3/	--	0.85	3/	13.52	5.11
California	8.42	7.69	5.50	-1.68	-0.91	-2.17	4.87	4.58	2.59
Arizona	8.01	6.32	2.33	-1.69	-1.03	-2.17	5.15	4.33	0.79
United States 1/	8.74	8.41	4.94	1.65	3.44	0.63	5.55	6.23	2.60
LEMONS:									
California	21.00	16.71	15.11	-0.75	-1.71	-1.48	13.05	9.38	6.61
Arizona	14.40	18.01	9.91	-0.60	-1.69	-1.50	8.22	9.74	5.28
United States	19.65	17.03	14.02	-0.71	-1.70	-1.48	12.00	9.47	6.37
TANGERINES:									
Florida	25.30	22.60	18.30	3.19	3.76	0.43	17.10	18.00	13.61
California	24.02	18.29	14.95	-1.65	-0.96	-2.63	15.94	12.29	9.44
Arizona	20.52	14.49	14.75	-1.65	-1.01	-2.63	16.71	10.36	10.21
United States 1/	24.10	19.75	16.74	1.42	1.05	-1.11	16.69	14.67	11.76
TANGELOS:									
Florida	9.70	9.20	5.60	3.21	5.10	0.77	6.11	7.16	2.85
TEMPLES:									
Florida	10.60	8.50	4.40	4.32	5.38	0.53	6.31	6.51	2.00
LIMES:									
Florida	22.52	14.08	2.20	-1.26	-0.90	-2.18	13.99	9.12	1.02

1/ U.S. average price is weighted by the size of the container.

2/ Net content of box varies. Approximated averages are as follows: oranges-California and Arizona, 75 lbs.; Florida, 90 lbs.; Texas, 85 lbs.; grapefruit-California, Desert Valleys and Arizona, 64 lbs.; other California areas, 67 lbs.; Florida, 85 lbs.; Texas, 80 lbs.; lemons, 76 lbs.; tangelos and temples, 90 lbs.; tangerines-California and Arizona, 75 lbs.; Florida, 95 lbs.; and limes-Florida, 88 lbs.

3/ Sales insignificant due to December 1989 freeze damage.

4/ Fresh sales insignificant and included in processed.

Source: National Agricultural Statistics Service, USDA.

Table 20--Citrus fruit: Season-average equivalent P.H.D. returns received by growers, by State, variety, and use, 1990/91-1992/93 1/

Variety and State	Fresh			Processing			All		
	1990/91	1991/92	1992/93	1990/91	1991/92	1992/93	1990/91	1991/92	1992/93
--Dollars per box 3/--									
ORANGES:									
Florida	10.36	10.42	5.70	7.56	7.59	4.50	7.79	7.83	4.57
Early and midseason	10.20	11.30	6.40	7.07	6.93	4.05	7.28	7.34	4.19
Valencia	10.50	8.60	4.40	8.25	8.55	5.20	8.48	8.91	5.16
California	22.41	9.77	9.02	0.96	1.11	-0.18	14.54	6.42	6.53
Navel and miscellaneous	16.68	11.05	8.60	0.89	1.51	-0.41	10.08	8.71	6.32
Valencia	29.95	7.48	9.80	1.18	0.91	0.17	21.73	3.93	6.91
Arizona	22.15	8.52	6.26	1.00	1.46	-0.39	18.14	6.82	4.99
Navel and miscellaneous	15.28	12.75	9.20	0.89	1.59	-0.43	13.63	11.29	7.56
Valencia	25.75	5.98	4.40	1.03	1.43	-0.37	20.21	4.64	3.43
Texas	4/	14.37	8.86	4/	0.00	4.90	4/	14.37	8.38
Early and midseason	4/	14.98	9.00	4/	0.00	4.91	4/	14.98	8.46
Valencia	4/	13.10	7.93	4/	0.00	4.36	4/	13.10	7.82
United States 2/	16.87	9.89	8.30	7.20	6.64	4.11	8.70	7.42	5.04
Early, midseason, and navel	13.89	11.15	8.18	6.68	6.46	3.69	7.68	7.72	4.73
Valencia	20.07	7.65	8.53	7.95	6.86	4.77	10.11	7.02	5.53
GRAPEFRUIT:									
Florida	10.43	10.29	6.46	3.74	5.87	2.58	7.29	8.25	4.21
Seedless	10.43	10.29	6.46	3.60	5.85	2.55	7.35	8.31	4.25
Seeded	5/	5/	5/	5.53	6.17	3.13	5.53	6.17	3.13
Texas	4/	15.12	8.33	4/	0.00	2.55	4/	15.12	6.86
California	9.94	9.47	7.47	-0.16	0.87	-0.20	6.39	6.36	4.56
Arizona	9.53	8.10	4.30	-0.17	0.75	-0.20	6.67	6.11	2.76
United States 2/	10.32	10.05	6.62	3.30	5.13	2.32	7.16	7.89	4.28
LEMONS:									
California	24.32	20.17	18.60	2.57	1.75	2.01	16.37	12.84	10.10
Arizona	17.72	21.47	13.40	2.72	1.77	1.99	11.54	13.20	8.77
United States	22.97	20.49	17.51	2.61	1.76	2.01	15.32	12.93	9.86
TANGERINES:									
Florida	27.90	25.20	20.90	6.19	6.76	3.43	19.85	20.70	16.31
California	26.25	20.38	17.10	0.58	1.13	-0.48	18.17	14.38	11.59
Arizona	22.75	16.58	16.90	0.58	1.08	-0.48	18.95	12.45	12.36
United States 2/	26.53	22.09	19.13	4.14	3.53	1.47	19.21	17.05	14.20
TANGELOS:									
Florida	11.60	11.10	7.50	5.26	7.15	2.82	8.10	9.14	4.84
TEMPLES:									
Florida	12.50	10.40	6.30	6.37	7.43	2.58	8.32	8.50	3.99
LIMES:									
Florida	28.20	19.60	8.00	3.14	3.50	2.62	19.21	14.27	6.55

1/ P.H.D.--Packinghouse-door.

2/ U.S. average price is weighted by the size of the container.

3/ Net content of box varies. Approximated averages are as follows: oranges-California and Arizona, 75 lbs.; Florida, 90 lbs.; Texas 85, lbs.; grapefruit-California, Desert Valleys and Arizona, 64 lbs.; other California areas, 67 lbs.; Florida, 85 lbs.; Texas, 80 lbs.; lemons, 76 lbs.; tangelos and temples, 90 lbs.; tangerines-California and Arizona, 75 lbs.; Florida, 95 lbs; and limes-Florida, 88 lbs.

4/ Sales insignificant due to December 1989 freeze damage.

5/ Fresh sales insignificant and included in processed.

Source: National Agricultural Statistics Service, USDA.

Table 21--U.S. citrus fruits: Production, use, and value, 1987/88-1992/93

Fruit and season	Production 1/ --1,000 short tons--	Use of production				Value of production Million dollars
		Fresh		Processed		
		Quantity	Percentage	Quantity	Percentage	
Oranges:				1,000 short tons		
1987/88	8,551	2,085	24.4	6,466	75.6	1,774
1988/89	8,949	2,016	22.5	6,933	77.5	1,848
1989/90	7,745	2,103	27.2	5,642	72.8	1,465
1990/91	7,848	1,221	15.6	6,627	84.4	1,585
1991/92	8,909	2,139	24.0	6,770	76.0	1,544
1992/93	11,062	2,438	22.0	8,624	78.0	1,315
Grapefruit:						
1987/88	2,801	1,332	47.6	1,469	52.4	479
1988/89	2,844	1,395	49.1	1,449	50.9	416
1989/90	1,978	882	44.6	1,096	55.4	372
1990/91	2,256	1,241	55.0	1,015	45.0	396
1991/92	2,224	1,249	56.2	975	43.8	431
1992/93	2,801	1,279	45.7	1,522	54.3	294
Lemons:						
1987/88	785	459	58.5	326	41.5	202
1988/89	759	466	61.4	293	38.6	235
1989/90	706	466	66.0	240	34.0	280
1990/91	719	449	62.4	270	37.6	290
1991/92	766	457	59.7	309	40.3	261
1992/93	930	471	50.6	459	49.4	242
Limes:						
1987/88	57	38	66.7	19	33.3	23
1988/89	55	42	76.4	13	23.6	21
1989/90	72	44	61.1	28	38.9	23
1990/91	64	41	64.1	23	35.9	28
1991/92	70	47	67.1	23	32.9	23
1992/93	44	32	72.7	12	27.3	7
Tangelos:						
1987/88	189	63	33.3	126	66.7	33
1988/89	171	61	35.7	110	64.3	31
1989/90	132	50	37.9	82	62.1	21
1990/91	119	53	44.5	66	55.5	21
1991/92	117	59	50.4	58	49.6	24
1992/93	137	59	43.1	78	56.9	15
Tangerines: 1/						
1987/88	218	153	70.2	65	29.8	80
1988/89	239	153	64.0	86	36.0	83
1989/90	164	111	67.7	53	32.3	72
1990/91	166	112	67.5	54	32.5	75
1991/92	260	189	72.7	71	27.3	104
1992/93	251	181	72.1	70	27.9	83
Temples:						
1987/88	160	58	36.3	102	63.8	28
1988/89	169	39	23.1	130	76.9	28
1989/90	63	6	9.5	57	90.5	11
1990/91	113	36	31.9	77	68.1	21
1991/92	106	38	35.8	68	64.2	20
1992/93	113	43	38.1	70	61.9	10
Total: 2/						
1987/88	12,761	4,188	32.8	8,573	67.2	2,619
1988/89	13,186	4,172	31.6	9,014	68.4	2,663
1989/90	10,860	3,662	33.7	7,198	66.3	2,243
1990/91	11,285	3,153	27.9	8,132	72.1	2,415
1991/92	12,452	4,178	33.6	8,274	66.4	2,407
1992/93	15,346	4,509	29.4	10,837	70.6	1,966

1/ Per program modification, all tangerines include Honey tangerines beginning with the 1987/88 season, and Sunburst tangerines beginning with the 1989/90 season.

2/ Some totals may not add due to rounding.

Source: National Agricultural Statistics Service, USDA.

Less Noncitrus Production Lifts Some Grower Prices

Declines in U.S. production of apples, Bartlett pears, and grapes in 1993 provided support for some grower prices. Increased peach production in South Carolina and Georgia more than offset a drop in California output. A record-large strawberry crop brought lower fresh prices and higher frozen stocks.

U.S. Apple Forecast Lowered

The final forecast for the 1993 U.S. apple crop was 5.256 million short tons, down 3 percent from USDA's August forecast, and 2 percent less than 1992 production. In many States, harvest has fallen short of expectations. Dry, hot summer weather contributed to smaller-sized fruit in the East, hail damaged crops in New York and Pennsylvania, and harvest was delayed by cool, wet weather in the Central and Western States.

Ample supplies of apples from last season and the prospect of a large 1993 crop kept pressure on apple prices through the summer, but recent prices have been stronger. In September, grower prices for fresh-market apples rose 15 percent from the prior month and October prices averaged 6 percent higher than the year-earlier. Prices received by growers had been below year-earlier levels since October of 1992, but tighter supplies and strong demand will boost apple prices this season.

The International Apple Institute (IAI) reported July 1 stocks of apples intended for fresh use were 32 percent higher than on July 1, 1992, and processor holdings were up 51 percent. As of November 1, 1993, total apple stocks were up just 2 percent, with fresh-use stocks up 7 percent and processor holdings down 12 percent from the year earlier. Given the reduced apple crop forecast, stocks are likely to be lower than year-earlier levels through most of the 1993/94 season.

Delayed Shipments Boost Apple Prices in the West

In the Western States, 1993 apple production was projected about the same as in 1992, 3.1 million tons. USDA's forecast of the Washington crop was unchanged at 2.4 million tons, but most varieties were picking out short of projections. Increased output in Idaho, Colorado, and California is expected to be offset by declines in Oregon and other Western States.

In September and October 1993, weekly shipments of Washington apples lagged behind 1992's early harvest. By mid-October cumulative shipments of all varieties were 25 percent behind the year earlier. Fruit size was reported smaller than normal for Golden, Gala, and Granny Smith

varieties. The delayed harvest boosted some early-season prices for Washington apples. September and October f.o.b. prices for all sizes of Golden Delicious apples were up from a year earlier, while Red Delicious prices were higher for all but the smallest size. In California, apple prices for most varieties and sizes were above the year earlier.

Lower Michigan Processing Apple Price

Production in the Central States was projected down 2 percent from the prior year, to 756,800 tons in 1993. Michigan's apple crop forecast was lowered 10 percent from the August forecast, to 500,000 tons, down 7 percent from 1992. Wet, cool weather delayed harvest and most areas reported output 15-30 percent short of projections.

The Michigan Apple Growers Marketing Committee established a minimum juice-apple price of \$90 per ton, down from \$115 a ton in 1992/93. Although with a smaller crop expected and good demand for most processing-apple varieties reported by the industry, actual prices may exceed the minimum. Washington and New York juice-apple prices were about the same as in November 1992.

Drought Reduces Eastern Apple Crop

Eastern States' apple output was forecast at 1.412 million tons in 1993, down 7 percent from the year earlier. Larger crops in Pennsylvania, New Jersey, Georgia, and North Carolina were offset by a 19 percent drop in New York apple output. Production forecasts were revised down as dry, hot summer weather reduced prospects in most of the East and kept fruit from sizing as well as expected.

USDA's October forecast of New York apple production was 475,000 tons, down 7 percent from the August forecast. Utilization of the New York apple crop may be down further if small-sized fruit is left on the trees. Hail storms in late August did some crop damage in western New York and Pennsylvania, which may have diverted some apples intended for fresh use to processing. About three-fourths of Pennsylvania's and half of New York's last three apple crops were processed.

Table 22--Apples, commercial production, 1991-93 1/

State and area	1991 2/	1992 2/	1993
--1,000 short tons--			
Eastern States:			
Connecticut	13.5	21.0	13.5
Delaware	12.5	10.0	10.0
Georgia	16.0	12.5	17.5
Maine	34.0	41.5	33.5
Maryland	21.0	25.0	21.0
Massachusetts	31.0	42.5	32.5
New Hampshire	20.0	27.0	20.5
New Jersey	46.0	27.5	37.5
New York	525.0	585.0	475.0
North Carolina	130.0	120.0	145.0
Pennsylvania	235.0	250.0	275.0
Rhode Island	2.8	3.3	2.5
South Carolina	20.0	30.0	30.0
Vermont	26.5	25.0	21.5
Virginia	210.0	185.0	175.0
West Virginia	100.0	112.5	102.5
Total 3/	1,443.3	1,517.8	1,412.5
Central States:			
Arkansas	5.0	4.0	5.5
Illinois	34.5	44.0	45.0
Indiana	30.0	35.0	40.0
Iowa	4.0	7.0	5.5
Kansas	3.8	3.0	5.0
Kentucky	10.0	8.0	11.0
Michigan	440.0	540.0	500.0
Minnesota	12.7	14.5	14.0
Missouri	20.0	18.5	26.0
Ohio	60.0	57.5	67.5
Tennessee	6.5	6.5	7.8
Wisconsin	30.0	31.5	29.5
Total 3/	656.5	769.5	756.8
Western States:			
Arizona	28.5	45.0	31.5
California	400.0	420.0	425.0
Colorado	37.5	45.0	46.0
Idaho	60.0	37.5	85.0
New Mexico	1.2	7.5	3.5
Oregon	60.0	87.5	70.0
Utah	27.5	30.0	26.0
Washington	2,150.0	2,400.0	2,400.0
Total 3/	2,764.7	3,072.5	3,087.0
United States 3/	4,864.4	5,359.8	5,256.3

1/ In orchards of 100-or-more bearing-age trees. 2/ Includes unharvested production and harvested not sold (short tons): U.S. 1991-69,900; 1992-105,200. 3/ Total may not add due to rounding.

Source: National Agricultural Statistics Service and Economic Research Service, USDA.

Table 23--U.S.-average monthly grower prices for fresh apples and pears, 1991/92-1993/94

Month	Apples			Pears		
	1991/92	1992/93	1993/94	1991/92	1992/93	1993/94
--Cents/pound--						
Jul	24.6	28.2	18.0	15.0	19.5	20.1
Aug	23.2	33.3	23.1	17.1	13.8	17.7
Sep	26.3	27.1	26.5	17.9	18.2	20.0
Oct	23.7	21.2	22.4	20.0	19.5	19.6
Nov	25.0	19.9		21.4	22.5	
Dec	25.5	20.0		20.7	19.0	
Jan	24.5	18.3		18.9	18.5	
Feb	24.8	16.7		19.2	20.9	
Mar	24.2	14.5		19.1	20.6	
Apr	24.0	14.3		19.7	21.5	
May	24.9	14.9		22.3	25.3	
Jun	25.0	16.1		--	26.9	
Jul	28.2	18.0		19.5	20.1	

-- = Insufficient marketing to establish price.

Sources: National Agricultural Statistics Service and Economic Research Service, USDA.

Bartlett Pear Crop Smaller, Grower Prices Mixed

USDA's final forecast for the 1993 U.S. pear crop was 935,300 short tons, down slightly from the August forecast and up 1 percent from 1992 production. Pear prices were mixed, with canning-pear prices down slightly and early-season prices for fresh-market pears rising. A larger crop is expected to pressure winter pear prices.

Bartlett pear production was forecast down in all three major producing States (California, Oregon, and Washington) bringing total U.S. production down 4 percent from 1992, to 538,000 tons. The California Bartlett pear harvest of 310,000 tons was completed in September and canners received nearly 75 percent of the harvested tonnage, down slightly from the 80 percent processed in 1992.

Canning pear prices for Washington, Oregon, and California crops were lowered to \$220 a ton in 1993, from \$230 the year earlier in Washington and Oregon and \$227 in California.

Production of other-than-Bartlett pears in the Pacific Coast States (including D'Anjou and Bosc varieties, marketed from October through June) is expected to total 397,000 tons, up 8 percent from 1992 and 14 percent above the 1988-92 average. Washington's winter pear crop forecast is 195,000 tons, up 17 percent from the year earlier.

USDA's cold storage report indicated that on August 31, 1993, fresh pear stocks were down 40 percent from the prior year. Tight supplies and a smaller Bartlett crop strengthened early-season prices for fresh-market pears. In September and October 1993, California f.o.b. prices for all sizes of fresh-market Bartlett pears were 30-50 percent above the year earlier.

Prices for Washington D'Anjou pears started within 10 percent of the year earlier in mid-October, with prices higher for the largest size and lower for smaller sizes. The U.S. average on-tree grower price for all fresh-market pears dropped below the year earlier in October 1993.

U.S. Grape Output Off 7 Percent in 1993

U.S. grape production is expected to total 5.608 million short tons in 1993, with California providing 5 million tons. California's grape crop is forecast down 8 percent from 1992, with raisin-type grape production dropping 18 percent to 2.2 million tons and table grapes down 7 percent to 600,000 tons. California is expected to produce 2.2 million tons of wine-type grapes in 1993, 3 percent more than in 1992.

Lower Wine Grape Demand

Prices will be lower in 1993/94, despite a smaller grape crop, due to diminished demand for wine and juice grapes. The 1992 U.S. grape crush was up 20 percent but will likely fall back in 1993. California wine stocks that were built up by increased production and imports in 1992 have dampened wine grape prices. In the fall of 1993, wineries were offering \$800-850 a ton for North Coast Chardonnays, compared to \$1,100-1,200 in 1992. Prices for more common varieties (French Colombard and Chenin Blanc) were \$150-175, down \$15-25 from a year earlier.

California raisin production is expected to increase because crush demand is down significantly from last year leaving more grapes for drying. The Raisin Administrative Committee estimated 1993/94 raisin production up about 2 percent from 1992/93. Less competition for grapes from juice and wine sectors has kept the raisin price steady despite a decline of raisin-type grape production in 1993. The price negotiated between the Raisin Bargaining Association and the packers remained \$1,155 per ton for the 1993 crop, unchanged from 1992 and 1991.

Larger U.S. Peach Crop in 1993

The U.S. peach crop (excluding California clingstone) is expected to total 815,000 tons in 1993, up 10 percent from the prior season. Peach production in the Southeastern United States recovered from the freeze-reduced 1992 level and was up nearly 50 percent in South Carolina, to 125,000 short tons, and 12 percent higher in Georgia, to 72,500 tons. However, California freestone peach output was off 2 percent, to 315,000 tons.

Grower prices for fresh-market peaches averaged 11 percent higher May-August 1993 than in the same months of 1992. Monthly prices for fresh-market peaches began the 1993 season 25 percent higher than in 1992, but ended just 7 percent higher. Reduced shipping volume from California and delayed shipments from the Southeast kept fresh-market prices mostly above the year earlier.

Production of California clingstone peaches was forecast down 4 percent in 1993. The industry reported that over-scale tonnage delivered to processors was down 7 percent

from 1992 and 6 percent less than 1993 pre-thinning estimates of deliveries. Cannery prices ended higher. Early in the season, the California Canning Peach Association and canners agreed to a sliding scale of \$197-230 per ton, down \$3 from 1992. However, just under 500,000 tons were processed (paid-for tonnage), obligating canners to pay \$224 a ton compared to \$220 in 1992.

Strawberry Crop Fills Freezers

USDA's final forecast in July pegged total 1993 strawberry production in six major States at 670,400 short tons, up 7 percent from 1992 and 2 percent more than the previous record set in 1991. California production rose 9 percent to 563,500 tons, while Florida's early crop dropped 11 percent to 62,500 tons.

From January through September 1993, monthly grower prices for fresh-market strawberries averaged 5 percent lower than during the same period in 1992. Lower fresh-market prices and higher output increased strawberry processing (84 percent sliced or whole frozen and 16 percent juice). About one-third of the California strawberry crop was processed, compared to about one-fourth in 1992, and deliveries to processors were up 38 percent. Average field prices for processing strawberries were higher due to the low carryover from 1992. Prices for #1 freezer berries averaged 27.8 cents a pound in 1993, up from 24.9 cents in 1992, while #2 juice berries were nearly unchanged at 9.2 cents a pound compared to 9.1 cents in 1992.

Supplies of frozen strawberries are plentiful. From April through October 1993, deliveries of California strawberries to freezers totaled 158,483 tons, up 43 percent from the same months in 1992. Total U.S. deliveries reached 187,355 tons during the period, up 31 percent, but lower carryover stocks from 1992 and increased movement prevented excessive stock buildup. According to USDA's *Cold Storage* report as of September 30, 1993, frozen strawberry stocks were up 21 percent from the same time a year earlier.

Table 24--U.S.-average monthly grower prices for fresh peaches and strawberries, 1991-93

Month	Peaches			Strawberries		
	1991	1992	1993	1991	1992	1993
--Cents/pound--						
Jan	--	--	--	125.0	110.0	103.0
Feb	--	--	--	94.3	79.9	94.2
Mar	--	--	--	63.5	69.6	61.4
Apr	--	--	--	73.4	49.1	54.4
May	28.9	21.2	28.4	50.0	41.3	49.7
Jun	23.6	20.5	19.4	36.5	64.3	57.9
Jul	16.2	14.0	19.0	46.5	49.7	44.2
Aug	16.2	21.9	21.6	35.0	89.2	60.7
Sep	22.8	21.8	23.4	35.0	61.1	63.7
Oct	--	--	--	55.0	70.7	56.7
Nov	--	--	--	110.0	119.0	
Dec	--	--	--	98.0	140.0	

-- = Insufficient marketing to establish price.

Sources: National Agricultural Statistics Service and Economic Research Service, USDA.

Cranberry Output Stable

U.S. cranberry production is expected to total 207,750 short tons in 1993, nearly the same as in 1992. Early prices were well above 1992, but are likely to come down if the production forecast is realized.

1993 Cranberry Production Up in Massachusetts and Wisconsin

The 1993 U.S. cranberry crop forecast is down fractionally from 1992 and just 1.5 percent from the record-large 1991 crop. Production is expected to be up from 1992 in Massachusetts, Wisconsin, and Washington, but down in New Jersey and Oregon. Weather conditions were reportedly too dry in Massachusetts and too wet in Wisconsin. A later harvest is expected to extend fresh cranberry availability through Thanksgiving, with some carry-over to Christmas possible.

The Massachusetts cranberry crop is expected to be up 1 percent from 1992. Excellent pollination conditions existed and the bloom and set were average to heavy. Dry and hot conditions in June and July stressed the crop. Some rainfall in August and September was beneficial, but water supplies remained inadequate. Growers reported medium- to large-sized berries and good crop potential with harvest underway in late September. Harvest was 60 percent complete in mid-October and the crop condition was still good. Tight water supplies were slowing the harvest as growers had to pump water from reservoirs to flood the bogs to harvest processing cranberries.

Wisconsin cranberry production is forecast up 4 percent, although a wet spring contributed to a 7-14 day later-than-normal season. No significant weather damage was reported in New Jersey where the cranberry crop is forecast down 7 percent from 1992, but 36 percent above the 1991 crop.

Cranberry production in Washington is forecast up 2 percent from 1992, while Oregon is expecting a 17 percent smaller crop. Rainy weather during pollination and excessive vine growth, which resulted from the cool, wet, and cloudy spring weather, limited production in Oregon, but affected mostly the early variety.

Cranberry Prices Rise

Wholesale cranberry prices in early October 1993 were 20-25 percent higher than a year earlier, with cases of 24/12 ounce bags trading at \$26-30, f.o.b. In 1992, the smaller crop raised the average grower price for cranberries to \$1,026 a ton (\$51.30 per 100-pound barrel), up 5 percent from 1991 and 11 percent higher than in 1990. The 1993 average grower price likely will be at or below 1992, if cranberry production remains nearly the same size as in 1992, because the total beginning inventory (August 31, 1993) was about 20 percent higher than the year earlier.

The value of U.S. cranberry production rose 3 percent in 1992 as the slightly smaller crop was sold for a higher price. Harvested acreage was up about 3 percent in 1992 from the year earlier, but the U.S. average yield declined 4 percent. Yields were down in Massachusetts and Wisconsin due to damage from a severe winter and hail. The summer drought likely kept Massachusetts yields down in 1993, but more normal yields coupled with more harvested acreage are expected to boost production in Wisconsin.

Cranberry Juice Sales Jump

Processed cranberry use has increased while fresh use has declined from the early 1980's. About 95 percent of the U.S. cranberry crop was processed in 1991 and 1992, compared to 76-78 percent of the 1981 and 1982 crops. Most processed cranberries are used for juice. While canned cranberry sauce remains a holiday staple, the industry reported increased demand for other cranberry products, like sweetened dried cranberries used in breakfast cereals and frozen cranberries used in desserts.

Consumer demand for cranberry juice products is strong and growing. According to supermarket scanner data, sales of cranberry juice were up nearly 70 percent in 1992 and sales of cranberry juice blends more than doubled in value and volume. Wholesale prices for cranberry juice cocktail have risen slowly and steadily in the last 3 years. In October 1993, a case of 12-32 ounce bottles was \$12.24-12.40 (f.o.b. Mid-Atlantic), compared to about \$11 in October 1990.

Figure 13

U.S. Cranberry Utilization and Season-Average Grower Price

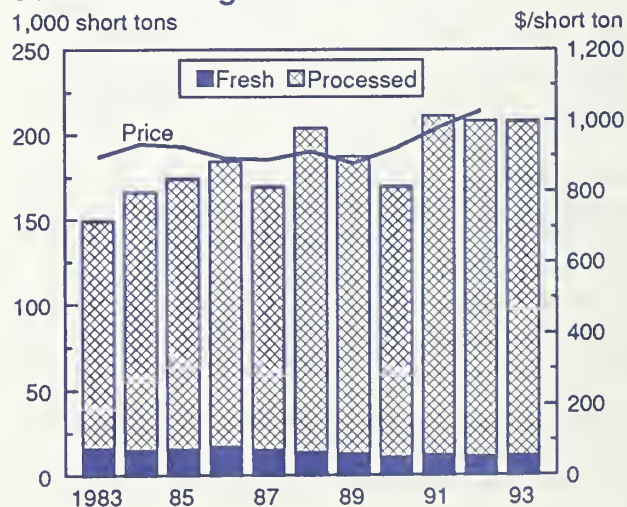


Table 25--Cranberries: Total production and season-average grower prices, 1990-92, and indicated 1993 production

States	Production				Price 1/		
	1990	1991	1992	1993	1990	1991	1992
	--1,000 short tons--				--Dollars per ton--		
Massachusetts	65.9	98.8	94.4	95.5	952	996	1,066
New Jersey	16.2	16.4	23.9	22.3	900	954	968
Oregon	10.5	10.2	14.4	12.0	896	944	962
Washington	7.8	7.9	7.9	8.0	896	944	962
Wisconsin	69.3	77.8	67.5	70.0	906	972	1,010
United States 2/	169.6	211.0	208.0	207.8	922	980	1,026

1/ Equivalent returns at first delivery point, screened basis of utilized production. 2/ Total may not add due to rounding.

Source: National Agricultural Statistics Service, USDA.

Table 26--Cranberries: Acreage harvested, yield per acre, production, utilization, season-average grower price, and value, United States, 1983-92

Year	Acreage harvested	Yield per acre	Total	Utilization			Price 2/	Value
				Fresh	Processed	Shrinkage 1/		
	Acres	Short tons		--1,000 short tons--			Dollars per ton	1,000 dollars
1983	24,050	6.2	149.3	16.1	129.4	3.8	896	133,830
1984	24,620	6.7	166.1	14.9	147.0	4.2	934	155,081
1985	25,700	6.8	174.3	15.7	154.7	3.9	926	161,439
1986	26,300	7.0	184.5	17.1	160.1	7.3	894	165,086
1987	26,700	6.4	169.6	15.2	151.5	2.8	890	150,906
1988	27,300	7.5	204.0	13.7	186.9	3.4	914	186,340
1989	27,500	6.8	187.4	12.7	170.4	4.3	880	164,720
1990	27,800	6.1	169.6	10.8	157.6	1.2	922	156,365
1991	28,300	7.5	211.0	11.8	195.6	3.5	980	206,616
1992	29,100	7.1	208.0	11.2	194.1	2.8	1,026	213,292

1/ Cranberries paid for by processors and lost because of dehydration and berry breakdown after delivery. 2/ Equivalent returns at first delivery point, screened basis of utilized production.

Source: National Agricultural Statistics Service, USDA.

U.S. Fruit Exports to Mexico and the Far East Expand

Although exports of apples, grapes, and pears dropped in 1992/93, foreign markets still accounted for 10-25 percent of the fresh-market utilization. The prospect for selling U.S. apples in Japan has improved, and the market for U.S. table grapes in Mexico has been opened.

EC Production Supplants U.S. Apples and Pears

U.S. fresh exports of apples and pears were down in 1992/93 compared to the year earlier. Apple and pear export tonnages were off 5 and 13 percent, respectively, as sharp declines in exports to Europe were not completely offset by growth in exports to the Far East and Mexico.

Fresh apple and pear exports to the EC each dropped about 75 percent in 1992/93 as European production recovered from freeze-reduced 1991/92 levels. Apple crops in France and Germany doubled in 1992/93 while total EC output rose to 11.6 million short tons from 6.2 million in 1991/92. EC pear production also recovered, rising from 2.1 million tons in 1991/92 to 3.2 million tons in 1992/93.

Apple production in Germany and France is expected to be down 23 percent in 1993 and pear production in the EC is forecast down 9 percent from 1992's large crop. While smaller crops may foster increased imports of U.S. apples, Europe has not been a major market for U.S. apples and pears. France is positioned to supply the European market and was the world's major fresh apple exporter in 1992/93 and 1990/91, with the United States the leader in 1991/92.

Taiwan Is Major Market for Apples and Grapes

Taiwan was the leading destination for U.S. apples in 1992/93, showing a 47 percent increase from the year earlier. Apple exports to Mexico, the second most important market, rose 49 percent. U.S. apple exports to

Canada have been more stable, but were up 21 percent in 1992/93.

U.S. table grape exports dropped 9 percent in 1992/93, mainly due to a 14-percent decline in shipments to Canada, the major destination. However, grape exports to some Far East markets increased: 47 percent to Taiwan, 27 percent to the Philippines, and 18 percent to Indonesia and Malaysia.

Tighter U.S. supplies contributed to the decline of grape exports in 1992/93. Fresh utilization of the 1992 California

Table 27--Destinations of selected U.S. fruit exports, 1988/89-1992/93 1/

Destination	Fresh apples				
	1988/89	1989/90	1990/91	1991/92	1992/93
--1,000 short tons--					
Canada	74.12	86.48	82.55	75.68	91.59
EC	26.78	37.29	51.78	103.97	25.48
Hong Kong	30.05	44.71	45.46	49.85	52.07
Mexico	8.30	12.35	11.54	73.70	109.53
Taiwan	50.75	74.39	67.06	85.17	125.37
Other	102.05	125.25	138.25	178.20	135.38
Total	292.04	380.47	396.64	566.58	539.41
Fresh grapes					
--1,000 short tons--					
Canada	127.20	128.53	140.80	133.45	114.98
Hong Kong	20.46	20.19	23.70	22.95	20.62
Singapore	5.25	5.47	6.24	7.35	5.99
Taiwan	14.07	13.11	16.21	11.20	16.47
United Kingdom	5.36	4.65	9.37	9.56	7.61
Other	26.96	28.05	31.32	40.48	38.87
Total	199.30	200.01	227.64	224.99	204.53
Fresh pears					
--1,000 short tons--					
Canada	34.52	39.62	41.46	39.39	38.47
EC	3.26	10.24	9.53	11.79	2.89
Mexico	12.37	29.90	26.03	34.24	37.72
Sweden	11.69	9.10	10.83	10.73	6.38
Taiwan	0.29	1.17	2.29	7.59	6.79
Other	9.12	17.99	26.09	22.72	18.37
Total	71.25	108.02	116.22	126.46	110.62

1/ Marketing years begin in July of the first year shown.

Sources: Bureau of the Census, U.S. Department of Commerce and the Economic Research Service, USDA.

Figure 14

U.S. Fresh Apple Exports: Volume and Share of Production

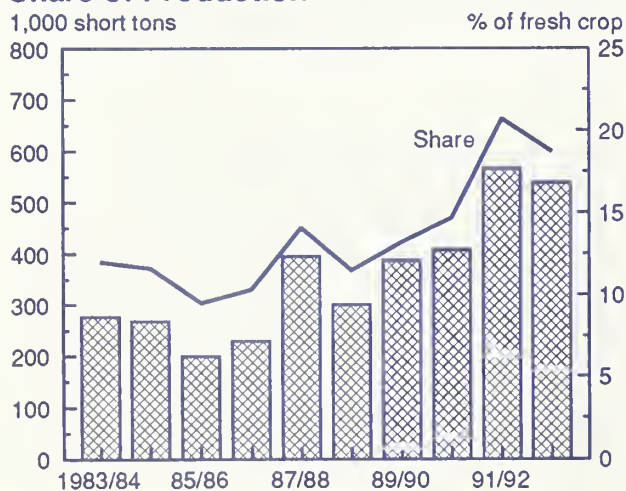


Figure 15

U.S. Fresh Grape Exports: Volume and Share of Production

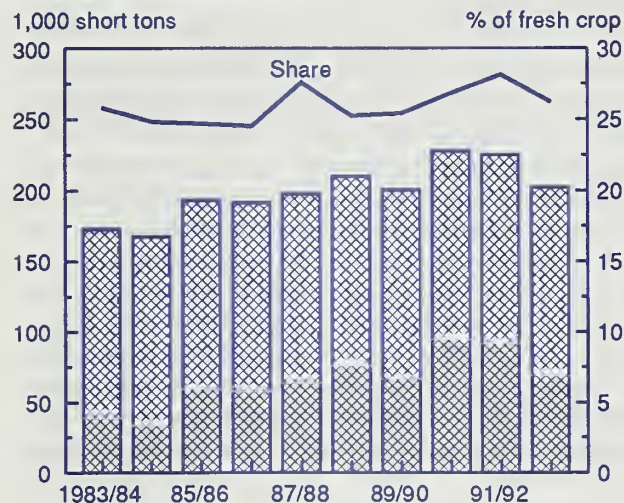
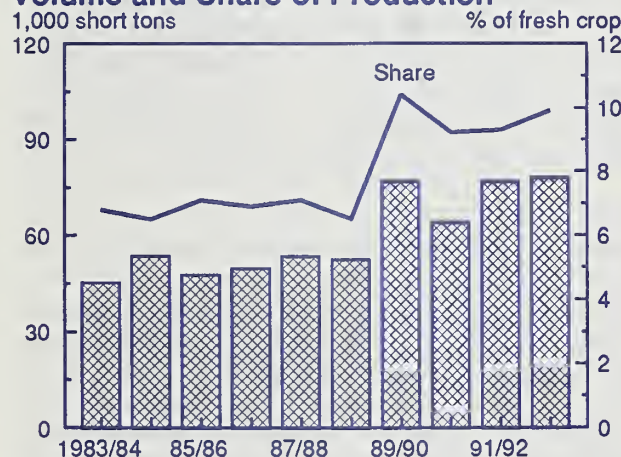


Figure 16

U.S. Fresh Peach and Nectarine Exports: Volume and Share of Production



grape crop was down 3 percent, as strong crush demand from the wine and juice sectors attracted 20 percent more grapes. Although U.S. grape production is expected to be down in 1993, diminished crush demand will make more grapes available for fresh use.

Canada Largest Market for U.S. Peaches and Strawberries

U.S. exports of peaches and nectarines were up nearly 2 percent in 1992, despite an 11 percent reduction in fresh use of the crop. Shipments to Canada rose 9 percent and accounted for nearly three-fourths of U.S. peach and nectarine exports. Since 1989, Mexico has been the second most important destination for U.S. peach and nectarine exports. However, Mexico imposed phytosanitary restrictions that halted 1992 peach shipments and held down early-season 1993 exports, until the issue was resolved at the end of July.

Canada remained the major market for U.S. fresh strawberries in 1992, accounting for 77 percent of U.S. exports.

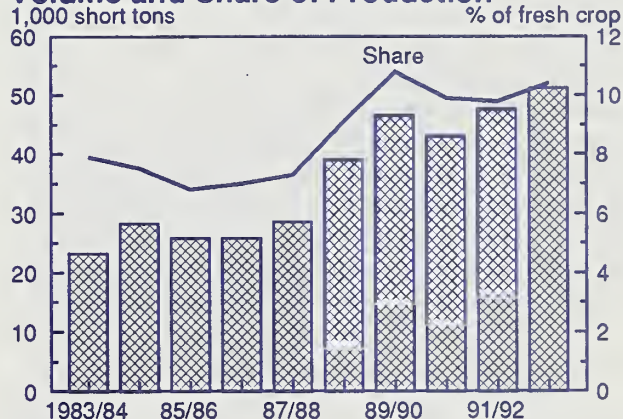
Table 28--Destination of selected U.S. fruit exports, 1988-92

Destination	Fresh peaches and nectarines				
	1988	1989	1990	1991	1992
--1,000 short tons--					
Canada	41.52	50.81	50.90	53.00	57.71
Hong Kong	0.68	0.37	0.95	2.26	2.11
Mexico	3.55	10.67	8.87	16.08	9.95
Taiwan	1.92	1.60	1.59	2.59	6.04
Venezuela	0.00	0.01	0.55	0.98	0.75
Other	4.71	1.39	0.88	1.74	1.32
Total	52.39	64.85	63.74	76.64	77.88
Fresh strawberries					
--1,000 short tons--					
Canada	34.00	37.34	36.61	39.89	39.17
Germany	0.29	0.36	0.58	0.61	0.82
Japan	3.34	3.72	3.88	4.20	3.94
Mexico	0.03	0.33	0.23	0.39	2.45
United Kingdom	0.39	0.58	0.67	0.91	2.75
Other	0.96	1.67	0.90	1.62	1.99
Total	39.00	44.00	42.87	47.61	51.13

Sources: Bureau of the Census, U.S. Department of Commerce and the Economic Research Service, USDA.

Figure 17

U.S. Fresh Strawberry Exports: Volume and Share of Production



However, Mexico and the United Kingdom were mostly responsible for the 7 percent gain in total U.S. fresh strawberry exports in 1992. Mexico's production was down and supplies were short early in 1992. Decreased shipments from the U.K.'s usual suppliers (Italy and Spain) in 1992 also contributed to the gain in U.S. strawberry exports.

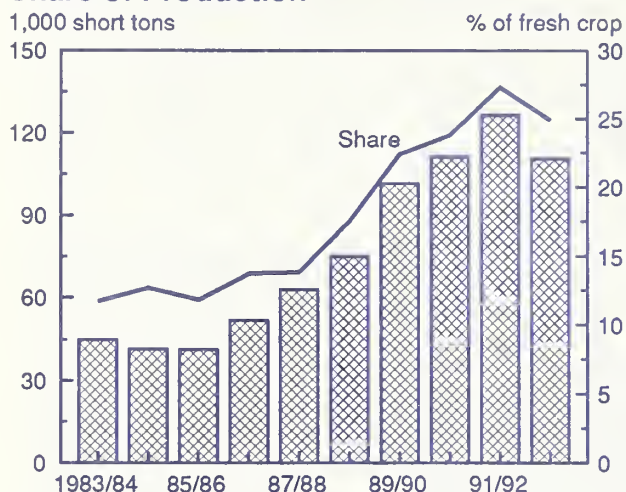
Programs and Policies Propel Exports

U.S. exports of apples, peaches and nectarines, pears, and strawberries have shown tremendous growth since the 1980's and export markets are accounting for an increasing share of U.S. fresh fruit production. Good potential exists for continued strong export growth due to market development through export promotion programs and changes in trade policies that are opening markets.

Producer assessments and industry contributions, combined with government funding, have contributed to export market development, especially since the mid-1980's. Targeted Export Assistance (TEA), the first federal large-

Figure 18

U.S. Fresh Pear Exports: Volume and Share of Production



scale non-price export promotion program, was established in 1985 to counter the adverse effects of unfair trade practices on U.S. agricultural exports. Allocations were \$110 million in 1986-88, rising to \$200 million in 1989.

The Market Promotion Program (MPP) replaced and expanded the purpose of the TEA program in 1990. Annual allocations for the MPP have ranged from nearly \$150 million to \$200 million. In fiscal 1993, \$28 million, nearly 20 percent of the funds, were allocated to promote exports of fresh and processed: apples, grapes, peaches, nectarines, pears, and strawberries. The fiscal 1994 budget reduced the appropriation for MPP to \$100 million. Reduced government funding will leave future export market expansion more dependent on continuing industry-sponsored promotions and revisions of trade policies.

U.S. Apples May Finally Go to Japan

The government of Japan stated in a September 1993 letter to the U.S. Trade Representative that it will "conduct expeditiously the government actions required to realize the entry of 1994 crop U.S. apples." Japan's stringent phytosanitary concerns have effectively banned imports of U.S. apples, although technically market access has been allowed since 1971. Japan has depended on domestic production for most of its fresh apple supply, with very limited imports from New Zealand and South Korea.

Before the September announcement, scientists from both countries agreed on a plan to resolve some technical questions concerning phytosanitary issues. The protocol outlined by Japan applies to Golden Delicious and Red Delicious apples from a limited Washington area (3,500 acres with a potential output equivalent to about 1 percent of the State's total apple output). Although few apples will qualify for shipment to Japan in 1994/95, more could

follow after the first protocol is established and U.S. apples become available to Japanese consumers.

NAFTA Will Reduce Mexico's Tariffs on Deciduous Fruit

Several provisions in the North American Free Trade Agreement (NAFTA) will lower the cost of exporting U.S. fruit to Mexico by reducing (and eventually eliminating) many tariffs. Currently Mexico imposes a 20-percent tariff on imports of fresh apples, fresh and frozen strawberries, fresh peaches, and nectarines from the United States.

Under the proposed NAFTA, the tariff on fresh strawberries will be eliminated immediately and the others will be reduced over a 10-year period. Mexico's 15-percent tariff on U.S. fresh pears will be phased out over 5 years. The import licensing requirement for fresh grapes will be replaced by a 20-percent tariff that will be phased out over a 10-year period.

Other Agreements Enhance Exports to Mexico

Mexico became the fastest growing U.S. apple export market after removing its import licensing requirement in 1991. Storage facilities for apples are limited in Mexico and U.S. apple shipments are heaviest in March-July after Mexico's crop is consumed. A phytosanitary inspection program required by Mexico is in place and handlers are making funding arrangements so apple shipments from Washington, Idaho, and Oregon can continue.

Mexico has also become an important market for U.S. pears as the Mexican pear industry has shrunk with the removal of many trees from unprofitable orchards. Reduced domestic production and elimination of import licensing in 1989 helped triple U.S. pear exports to Mexico between 1988/89 and 1992/93.

California table grapes can now be exported to Mexico. The government of Mexico agreed to issue import licenses to grape shippers for the first time. The California Table Grape Commission had been working on the agreement for 3 years prior to the announcement in September 1993. Import licenses must be obtained from Mexico's Departments of Commerce and Agriculture. According to the Commission, several shippers obtained both licenses and U.S. grapes were shipped to Mexico in October.

Resolution of phytosanitary issues will help increase peach and nectarine exports to Mexico. A protocol between the United States and Mexico was signed in late June 1993 regarding the fumigation of peaches and nectarines before entering Mexico. Eight California fumigators funded the inspection and certification process that was reviewed and accepted by Mexico in July. The first shipments of 1993 peaches and nectarines were allowed into Mexico from the United States at the end of July.

Larger Supplies of Most Tree Nuts in 1993/94

Total U.S. tree nut supplies in 1993/94 are up 1 percent from a year earlier. Bumper 1993 crops of pecans, hazelnuts, walnuts, and pistachios are expected to offset a smaller almond crop and lower beginning stocks of several tree nuts.

Tree nut production in 1993 is forecast at 925 million pounds (shelled), up 9 percent from a year earlier. However, because of lower beginning stocks and a smaller almond crop, the total U.S. tree nut supply in 1993/94 is expected to be up only 1 percent from last year, and 3 percent lower than the 5-year average. Lower beginning stocks of all tree nuts except pistachios led to the lowest total tree nut carry-over since 1987/88. Nevertheless, a bumper crop of walnuts, and record crops of pecans, hazelnuts, and pistachios are expected to put downward pressure on grower prices in 1993/94.

California Walnut Crop Up 23 Percent

The 1993 California walnut crop is forecast at 250,000 tons (in-shell), up 23 percent from last year, but 3 percent less than the record high in 1991. Lower beginning stocks mean that walnut supplies are expected to be up just 7 percent. Because of the larger 1993 walnut crop and larger supplies of pecans, a walnut substitute, the season-average grower price for walnuts is expected to decline from last year's record of \$1,320 per ton.

Macadamia Nut Production and Price Slip in 1992/93

Macadamia nut production was estimated at 48 million pounds (in-shell) in 1992/93, down 3 percent from the previous year. Dry weather contributed to lower yields by adversely affecting flowering and kernel size, as well as encouraging higher insect populations. The season-average grower price for 1992/93 was revised down to 68

cents per pound (net, wet-in-shell), 2 cents below a year earlier and a 9-year low.

Another Record Hazelnut Crop in 1993

The 1993 U.S. hazelnut crop (Oregon and Washington) is forecast at a record high 38,000 tons (in-shell), 37 percent above the 1992 record. Oregon's crop is projected to total 37,700 tons and Washington growers are expected to harvest 300 tons. Expanding production in recent years has led to lower grower prices, which declined from \$820

Figure 20

Macadamia Nuts: Production and Season-Average Grower Price

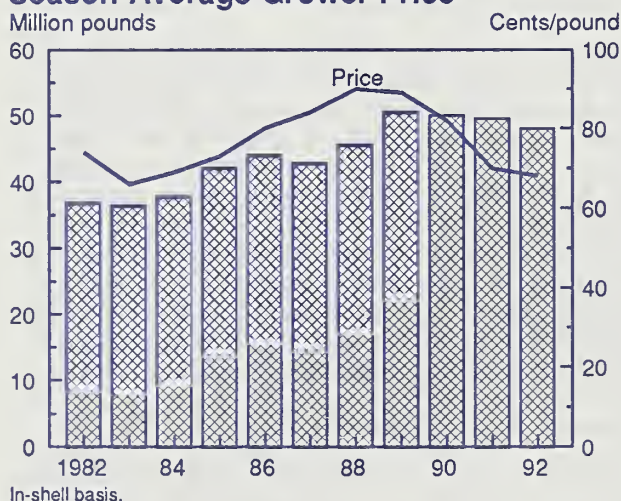


Figure 19

Walnuts: Production and Season-Average Grower Price

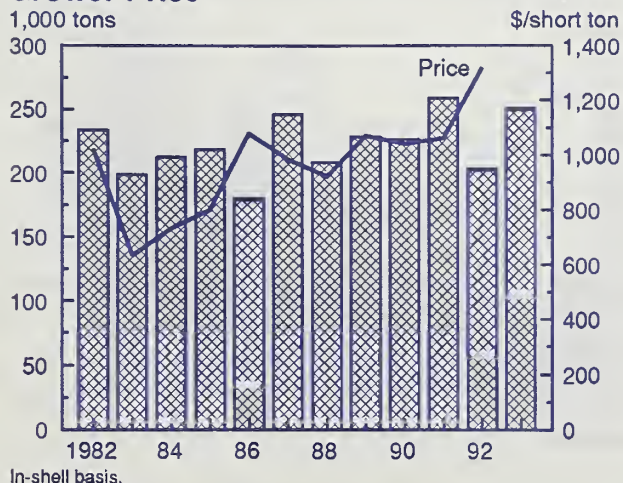
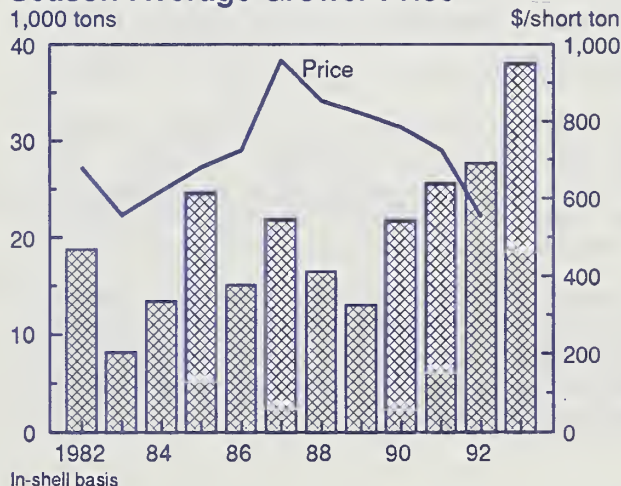


Figure 21

Hazelnuts: Production and Season-Average Grower Price



per ton in 1989/90 to \$552 per ton in 1992/93. Grower prices are expected to decline again in 1993/94, which will likely lead to higher domestic consumption and exports. Per capita consumption of hazelnuts has been stable during the last 10 years, averaging 0.06-.07 pounds.

Record Pecan Crop in 1993

U.S. pecan production is expected to total a record 379 million pounds (in-shell), more than twice last year's paltry crop and topping the previous record of 376 million pounds in 1963. Favorable growing conditions led to larger crops in all reporting States. Despite dry weather, Georgia's pecan crop could be four times the size of last year's crop. Texas, the second largest pecan producer after Georgia, is also expecting a good-sized crop, up 37 percent from 1992. The large U.S. crop will boost 1993/94 supplies more than 30 percent and likely lead to lower pecan prices. In early September, field prices for early varieties in Texas were off one-third from a year earlier. In recent years, smaller supplies and higher pecan prices have reduced U.S. consumption and encouraged users (especially the baking industry) to substitute other nuts. In 1993/94, lower prices are expected to boost consumption of pecans and help regain market share.

U.S. Almond Supply Declines for Third Consecutive Year

U.S. almond production (California) in 1993 is forecast at 470 million pounds (shelled basis), down 14 percent from 1992. Nut sets were light, but quality is expected to be excellent. If the forecast is realized, production would be the lowest in 7 years. The smaller crop and low beginning stocks have reduced the almond supply. With continued strong domestic and export demand, the season-average grower price in 1993/94 is expected to be well above the 5-year average of \$1.09 cents per pound. In 1992/93, a moderately larger crop and low beginning stocks helped raise the average from \$1.19 per pound to \$1.26. Higher almond prices will likely reduce consumption and exports in 1993/94.

Pistachio Output Unexpectedly Higher in 1993

The 1993 pistachio crop was expected to be lower than last year's record because it is a "down year" in the trees' alternate bearing pattern. However, the California Pistachio Commission's first forecast indicates that the crop will be larger than in 1992, because more trees are reaching higher (more mature) yields. The cool summer and favorable moisture may have also contributed to the surprising increase in production. Consequently, pistachio supplies in 1993/94 are forecast higher than last year. Domestic consumption, exports, and ending stocks could all hit records in 1993/94.

Exports have been booming in recent years, increasing more than four-fold from 1989/90 to 1992/93. Key destinations include Hong Kong, Germany, Taiwan, and Japan. Some of the in-shell nuts exported to Hong Kong are returned to the United States as split pistachios.

In October, the industry reported very competitive pricing for the new crop. Because of large 1993/94 supplies, grower prices could be lower than in 1992/93. The season-average grower price for pistachios was \$1.03 per pound (in-shell) in 1992/93.

Figure 22

Pecans: Production and Season-Average Grower Price

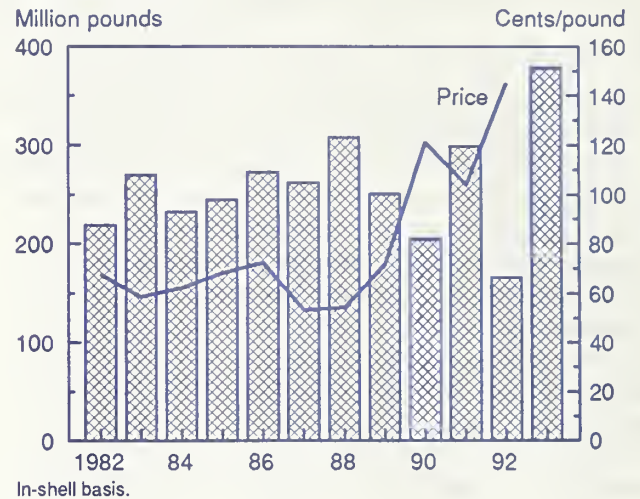


Figure 23

Almonds: Production and Season-Average Grower Price

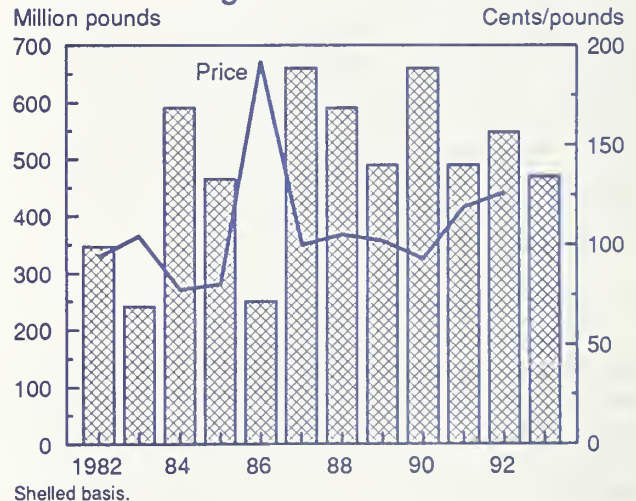


Figure 24

Pistachios: Production and Season-Average Grower Price

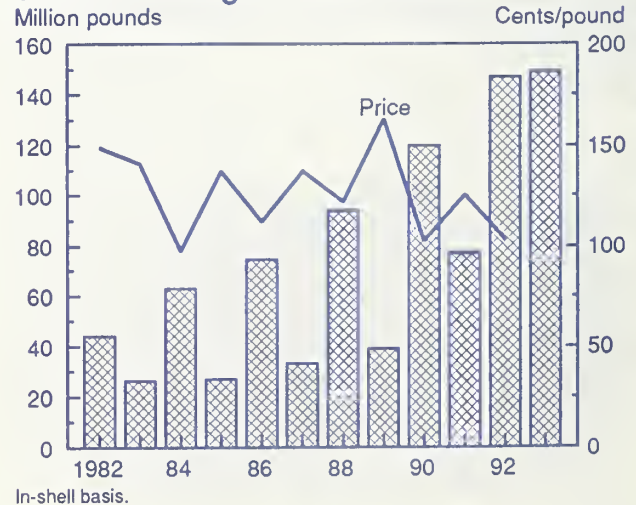


Table 29--Tree nuts: Production in principal States, 1988-92, and indicated 1993

Crop and State	1988	1989	1990	1991	1992	Indicated 1993
--1,000 pounds-- (shelled basis)						
Almonds:						
California	590,000	490,000	660,000	490,000	548,000	470,000
(in-shell basis)						
Hazelnuts:						
Oregon	32,600	25,600	43,000	50,600	55,000	75,400
Washington	400	400	400	400	400	600
2 States	33,000	26,000	43,400	51,000	55,400	76,000
Walnuts, English:						
California	418,000	458,000	454,000	518,000	406,000	500,000
Macadamia nuts:						
Hawaii	45,500	50,500	50,000	49,500	48,000	--
Pistachios:						
California	94,000	39,000	120,000	77,000	147,000	4/ 148,850
Pecans:						
Alabama	10,000	22,000	5,000	18,000	4,000	30,000
Arkansas	3,000	1,000	250	3,000	1,300	2,000
California	2,200	2,000	2,800	2,300	2,600	3,500
Florida	6,000	7,000	3,600	3,500	2,500	7,000
Georgia	110,000	85,000	65,000	100,000	30,000	130,000
Kansas 1/	--	--	--	--	--	2,500
Louisiana	22,000	14,000	6,000	27,000	1,000	24,000
Mississippi	10,000	8,500	2,200	7,500	700	8,000
New Mexico	26,000	29,000	34,000	29,000	30,000	34,000
North Carolina	5,500	700	400	5,500	2,500	3,500
Oklahoma	47,000	9,000	5,000	17,000	9,000	25,000
South Carolina	6,500	1,000	500	5,500	300	4,500
Texas	60,000	55,000	60,000	60,000	62,000	85,000
Other 2/	--	16,300	20,250	20,700	20,100	19,500
Total	308,200	250,500	205,000	299,000	166,000	378,500
Improved varieties 3/	185,500	161,000	143,500	163,300	104,800	232,400
Native and seedling	122,700	73,200	41,250	115,000	41,100	126,600

-- = Not available.

1/ Estimate published separately beginning 1993.

2/ Arizona, Kansas (until 1993), Missouri, and Tennessee, beginning with the 1989 crop. No breakdown between varieties available.

3/ Budded, grafted, or topworked varieties.

4/ Preliminary crop estimate by California Pistachio Commission.

Sources: National Agricultural Statistics Service and Economic Research Service, USDA.

Table 30--Tree nuts: Supply and utilization, by commodity and marketing year, 1987/88-1993/94

Commodity	Marketing year 1/	Marketable production 2/	Imports	Beginning stocks	Market reserve 3/	Total supply	Ending stocks	Exports	Domestic consumption	
									Total	Per capita
--1,000 pounds (shelled)--										Pounds
Almonds	1987/88	634,560	650	79,017	114,220	714,227	227,894	343,300	143,033	0.59
	1988/89	564,540	480	227,894	141,130	792,914	265,206	363,970	163,738	0.66
	1989/90	457,170	247	265,206	0	722,623	203,100	342,380	177,143	0.71
	1990/91	615,700	132	203,100	43,100	818,932	241,360	359,950	217,622	0.87
	1991/92	461,632	204	241,360	1,260	703,196	148,100	377,879	177,217	0.70
	1992/93 p	516,000	256	148,100	0	664,356	133,500	349,851	181,005	0.70
1993/94 f	455,900	300	133,500	0	589,700	95,000	316,000	178,700	0.69	
Hazelnuts	1987/88	17,218	3,863	1,139	0	22,220	1,758	5,898	14,564	0.06
	1988/89	12,693	8,165	1,758	0	22,615	1,686	3,778	17,152	0.07
	1989/90	9,794	7,157	1,686	0	18,637	1,107	3,344	14,186	0.06
	1990/91	13,668	10,116	1,107	0	24,892	2,977	4,726	17,188	0.07
	1991/92	18,923	6,172	2,977	0	28,072	6,410	7,135	14,527	0.06
	1992/93 p	21,134	8,808	6,410	0	36,352	6,081	12,357	17,914	0.07
1993/94 f	28,224	4,685	6,081	0	38,990	7,000	14,000	17,990	0.07	
Pecans	1987/88	121,136	12,966	63,423	0	197,525	62,520	3,935	131,071	0.54
	1988/89	135,030	2,718	62,520	0	200,267	70,785	5,885	123,598	0.50
	1989/90	101,989	9,990	70,785	0	182,764	58,260	9,509	114,995	0.46
	1990/91	97,530	30,494	58,260	0	186,284	45,892	17,793	122,600	0.49
	1991/92	118,933	18,725	45,892	0	183,550	49,585	17,216	116,749	0.46
	1992/93 p	74,147	30,312	49,585	0	154,043	39,724	15,882	98,437	0.38
1993/94 f	163,925	10,000	39,724	0	213,650	60,000	18,000	135,650	0.52	
Walnuts 4/	1987/88	204,292	470	28,343	0	233,105	59,954	59,243	113,908	0.47
	1988/89	169,916	184	59,954	0	230,054	48,231	60,263	121,560	0.49
	1989/90	195,594	142	48,231	0	243,967	54,196	66,896	122,876	0.49
	1990/91	180,800	95	54,196	0	235,091	48,736	63,902	122,452	0.49
	1991/92	210,436	82	48,736	0	259,254	55,689	72,386	131,179	0.52
	1992/93 p	163,319	8,045	55,689	0	227,053	37,150	58,235	131,668	0.51
1993/94 f	204,569	2,000	37,150	0	243,720	49,000	60,000	134,720	0.52	
Macadamias	1987/88	9,522	2,090	0	0	11,612	0	632	10,980	0.05
	1988/89	11,193	2,503	0	0	13,696	0	1,259	12,437	0.05
	1989/90	11,918	3,760	0	0	15,678	0	3,000	12,678	0.05
	1990/91	11,700	5,162	0	0	16,862	0	4,000	12,862	0.05
	1991/92	11,880	2,942	0	0	14,822	0	5,000	9,822	0.04
	1992/93 p	10,320	4,732	0	0	15,052	0	5,000	10,052	0.04
1993/94 f	10,500	5,500	0	0	16,000	0	5,000	11,000	0.04	
Pistachios	1987/88	14,579	2,166	15,005	0	31,750	5,487	3,469	22,794	0.09
	1988/89	44,752	854	5,487	0	51,093	14,897	6,442	29,754	0.12
	1989/90	18,029	2,124	14,897	0	35,051	10,045	5,164	19,842	0.08
	1990/91	42,047	852	10,045	0	52,944	16,864	9,575	26,505	0.11
	1991/92	25,476	250	16,864	0	42,590	6,072	16,407	20,110	0.08
	1992/93 p	65,362	395	6,072	0	71,829	17,595	27,045	27,189	0.11
1993/94 f	62,007	400	17,595	0	80,003	23,000	29,000	28,003	0.11	
Other Nuts 5/	1987/88	0	110,239	0	0	110,239	0	9,800	100,439	0.41
	1988/89	0	111,838	0	0	111,838	0	13,876	97,962	0.40
	1989/90	0	146,409	0	0	146,409	0	19,211	127,198	0.51
	1990/91	0	151,549	0	0	151,549	0	25,429	126,120	0.50
	1991/92	0	142,693	0	0	142,693	0	31,758	110,935	0.44
	1992/93 p	0	178,093	0	0	178,093	0	25,809	152,284	0.59
1993/94 f	0	180,000	0	0	180,000	0	30,000	150,000	0.58	
Total Nuts	1987/88	1,001,307	132,444	186,927	114,220	1,320,678	357,612	426,277	536,789	2.20
	1988/89	938,124	126,742	357,612	141,130	1,422,478	400,806	455,472	566,200	2.30
	1989/90	794,495	169,828	400,806	0	1,365,129	326,708	449,504	588,917	2.37
	1990/91	961,446	198,400	326,708	43,100	1,486,554	355,829	485,376	645,349	2.57
	1991/92	847,280	171,067	355,829	1,260	1,374,176	265,855	527,781	580,540	2.28
	1992/93 p	850,281	230,640	265,855	0	1,346,776	234,051	494,178	618,547	2.41
1993/94 f	925,126	202,885	234,051	0	1,362,063	234,000	472,000	656,063	2.53	

p = preliminary. f = forecast.

1/ Marketing season begins July 1 for almonds, hazelnuts, macadamias, pecans, and other nuts; August 1 for walnuts; and September 1 for pistachios. 2/ Marketable production is used to calculate consumption which excludes inedibles and noncommercial usage. 3/ Market reserve allocated to domestic consumption, export or ending stocks. 4/ Export figures from the Walnut Marketing Board. 5/ Includes Brazil nuts, cashew nuts, pine nuts, chestnuts and mixed nuts.

Source: Economic Research Service, USDA.

Trends in U.S. Fruit Yields 1970-92

by

Diane Bertelsen¹

Abstract: U.S. apple yields per acre have been on an upward trend, rising nearly 40 percent from 1970 to 1992. The estimated yield trend for grapes rose 15 percent and pear yields nearly doubled since 1970. Freestone peach yields rose 18 percent in the 1970's but declined 4 percent in the 1980's. Florida orange yield trends were similar in 1970-83 and 1979-92, rising 23-24 percent, but freeze-reduced yields in the early-1980's shifted the trend line downward.

Keywords: Yield per acre, bearing acreage, production, fruit.

Washington Yields Boost Apple Production

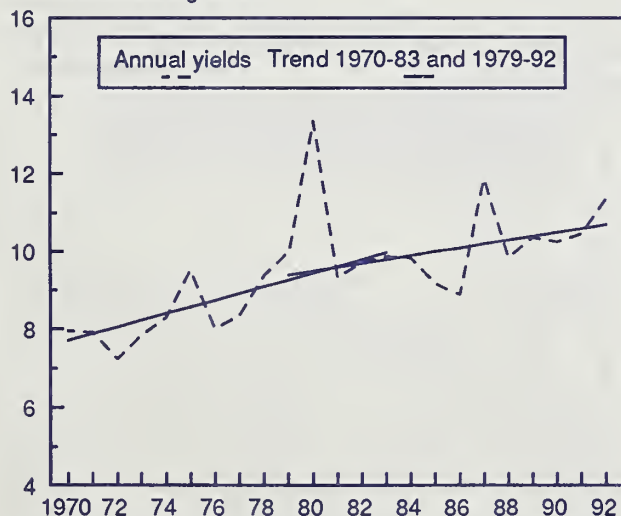
Higher yields per acre were mostly responsible for apple output growth in the 1970's and more bearing acreage contributed in the 1980's. U.S. apple yields per acre have been on an upward trend since 1970, with a slightly flatter trend in the 1980's. Estimates of the trend began in 1970 at 7.7 short tons per acre and the final estimate was 10.7 tons in 1992, an increase of nearly 40 percent.

U.S. apple production rose more than 60 percent, from an average of 3.1 million tons in 1970-72 to 5.0 million tons in 1990-92. Most of the gain occurred in the 1970's when total output rose about 45 percent. U.S. apple-bearing acreage rose 3 percent in the 1970's and 13 percent in the 1980's.

Figure A-1

U.S. Apple Yields

Short tons/bearing acre



¹Agricultural Economist, Specialty Agriculture Branch, Commodity Economics Division, ERS.

Improved apple varieties and changes in cultural practices were behind the growth of yields per acre in Washington, where half of the U.S. apple crop is typically produced. Washington's yield per acre rose as tree density increased in the 1970's and early 1980's. In 1970-73, only 4 percent of the newly planted apple trees were set at 400 or more trees per acre, compared to 40 percent in 1985. Washington apple yields rose from about 10 tons per acre in 1972 to 15 tons per acre in 1992, the highest of any State.

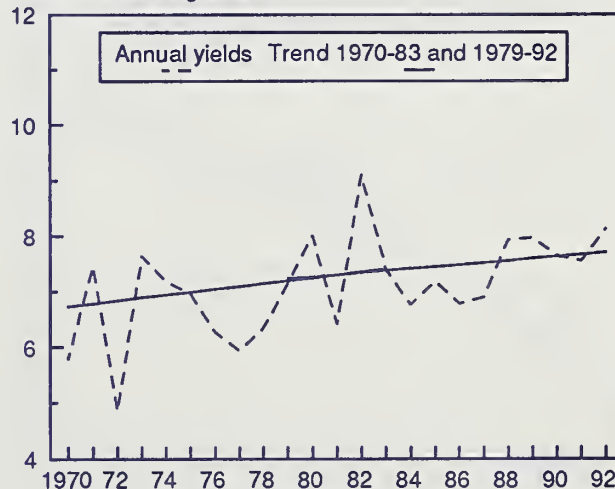
Acreage Raises Grape Production

Grape yields per acre have risen since 1970 and have been less variable since the mid-1980's. The estimated yield trend rose 15 percent, from 6.7 short tons per bearing acre in 1970 to 7.7 tons in 1992. Rising per-acre yields, combined with a nearly 40 percent increase in bearing acres, brought grape production up nearly 80 percent between 1970-72 and 1990-92.

Figure A-2

U.S. Grape Yields

Short tons/bearing acre



Most of the gain in acreage was from California wine-type grapes. California dominates the U.S. grape sector, providing about 90 percent of utilized production. California's bearing acreage of all three types of grapes have increased since 1970. Between 1970-72 and 1990-92, raisin-type grape acreage was up 10 percent, table grape acreage gained 13 percent, while wine-type grape acreage increased 120 percent. Bearing acres of wine grapes more than doubled in the 1970's and inched up 3 percent in the 1980's.

Wine grapes have a slightly lower yield per acre than the others. In 1990-92, raisin grapes averaged 9.3 tons, table grapes were 8.3 tons, and wine types averaged 7.4 tons per acre. Despite lower output per acre, premium wine grapes can increase grower returns with high quality and value.

Winter Pears Propel Production Gains

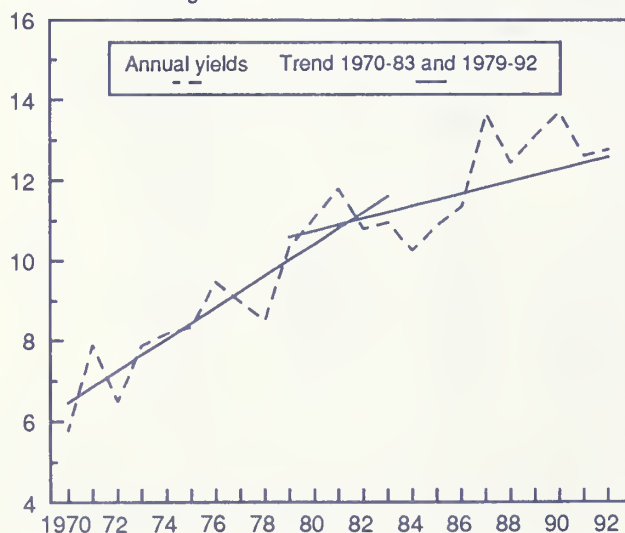
Pear yields per acre have nearly doubled since 1970. The estimated trend yield rose from 6.5 tons per bearing acre in 1970 to 12.6 tons in 1992, a 60-percent increase in the 1970's and a 20-percent gain between 1980 and 1992. Much higher yields offset declines in bearing acreage to raise total U.S. pear production about 45 percent from 1970-72 to 1990-92. U.S. pear acreage dropped 20 percent in the 1970's and then another 5 percent by 1992.

U.S. pear production has increased since 1970, with varieties other than Bartlett (winter pears) more than doubling and Bartlett production growing about 25 percent between 1970-72 and 1990-92. Washington's output of winter pears more than tripled in the last 20 years amounting to nearly half of U.S. production in 1990-92. Higher density planting in Washington raised winter pear yields to 15.3 tons per bearing acre compared to 12.8 tons for Bartletts.

Figure A-3

U.S. Pear Yields

Short tons/bearing acre



Peach Yields Flatten in 1980's

Peach yields per acre were quite variable in 1970-92. Most peach-growing areas are subject to yield-reducing weather such as late-spring freezes and summer storms. California's per-acre peach yields were much less variable and higher than yields in South Carolina and Georgia. Since 1970, production of freestone peaches has shifted to California. In 1990-92, California accounted for 43 percent of U.S. freestone peach production, compared to 27 percent in 1970-72, while South Carolina and Georgia provided 23 percent in 1990-92, down from 28 percent in 1970-72.

For all U.S. freestone peaches, estimated yield trends rose 18 percent in the 1970's but declined 4 percent in the 1980's. In 1970, the trend began at 3.9 short tons per bearing acre, rising to 4.6 tons in 1981, and dipping to 4.4 tons in 1992. California freestone peach yields have ran-

Figure A-4

U.S. Peach Yields

Short tons/bearing acre

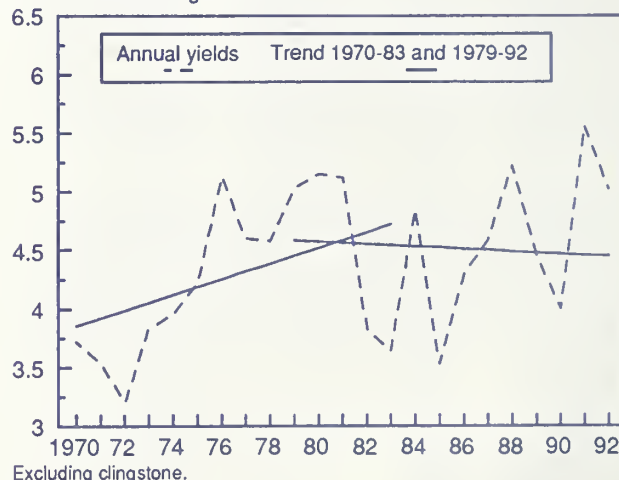
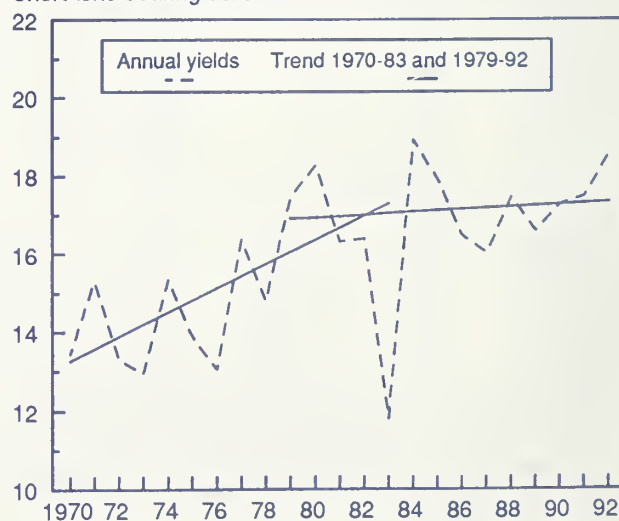


Figure A-5

California Clingstone Peach Yields

Short tons/bearing acre



ged from 9 to 11 tons per acre since 1970. In the 1970's, South Carolina yields were lower than California, ranging from 4 to 6 tons, but not much more variable. However, in the 1980's bad weather damaged several South Carolina crops and annual yields varied from 1 to 6 tons per acre, lowering trend estimates.

The upward trend of California clingstone peach yields per acre, that was quite evident in the 1970's, became less pronounced in the 1980's. Trend yields for California cling peaches rose from 13.3 tons per bearing acre in 1970 to 17.0 tons in 1982, and then to 17.3 tons in 1992. Higher output per acre did not offset declining acreage and in 1990-92 California's cling peach output averaged nearly 30 percent lower than in 1970-72. Bearing acreage dropped 48 percent from 1970 to 1992, with most of the decline in the 1970's.

Florida Orange Yields Rise Despite Freezes

Florida's orange yields per bearing acre show the effects of several crop-damaging freezes in the 1980's. Yield trends were similar in the two periods, 1970-83 and 1980-93, rising 23-24 percent. However, freeze-induced low yields in the early-1980's shifted the trend line down.

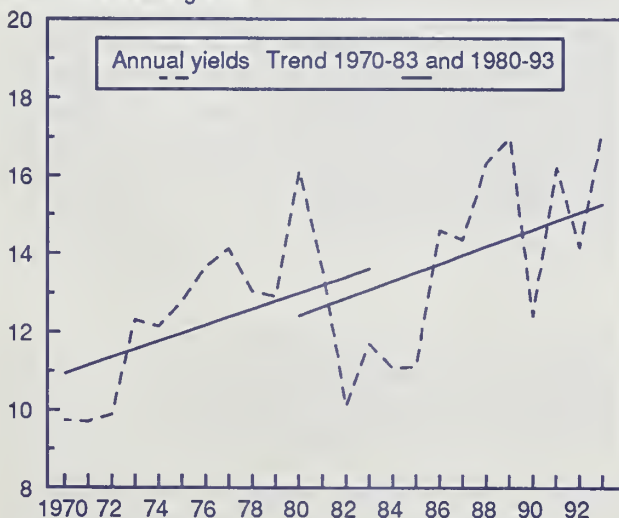
Some of the higher Florida orange yields can be attributed to planting more trees per acre. Density of plantings increased from an average 82 trees per acre in 1976 to 116 trees per acre in 1992. There are more trees per acre, and although the trees are smaller, fruit production per acre has risen.

Florida's orange juice output capacity has been raised by producing more fruit per acre and extracting more juice from the fruit. Florida orange juice yields averaged 23 percent higher in the early 1990's: from an average 1.245 gallons a box in 1970-72 to 1.527 gallons in 1991-93.

Figure A-6

Florida Orange Yields

Short tons/bearing acre



California Orange Yield Improves

The advance of California orange production since 1970 was due to higher yields per acre not more bearing acreage. The estimated yield trend began at 8.4 short tons per bearing acre in 1970 and rose to 14.0 tons in 1993. California orange yields per acre rose 20 percent from 1970 through 1983 and nearly 40 percent from 1980-93. Actual annual California orange yields improved each year from 1985 through 1990. California's average orange production in 1990, 1992, and 1993 (omitting the freeze year 1991) showed a 60 percent gain over 1970-72.

Orange-bearing acreage in California was just slightly higher at the end of the period -- rising from an average 187,200 acres in 1970-72, peaking at 221,000 acres in 1975, and then dipping to 190,900 acres in 1991-93. California's improved orange yields per acre resulted from Navel orange trees planted in the 1970's reaching maturity in the 1980's and replacing older Valencias that had a more pronounced alternate-year bearing tendency. New navel orange varieties planted in the San Joaquin Valley with higher tree density raised yields per acre. Improved cultural practices, as well as mostly good citrus-growing weather, also helped raise California orange output per acre in the 1980's.

Freezes Distort Florida Grapefruit Trends

Florida's grapefruit yields per bearing acre show the effects of crop-damaging freezes in the 1980's. Yield trends were different in the two periods, relatively flat in 1970-83, dipping from 17.3 to 17.0 tons per bearing acre, and then rising from 16.4 tons in 1980 to 18.9 tons in 1993. Grapefruit yields were especially low in 1983, 1984, and 1990 following severe freezes. Trends estimated from so many years of "abnormal" production data are not good indicators of intended or potential output.

Figure A-7

California Orange Yield

Short tons/bearing acre

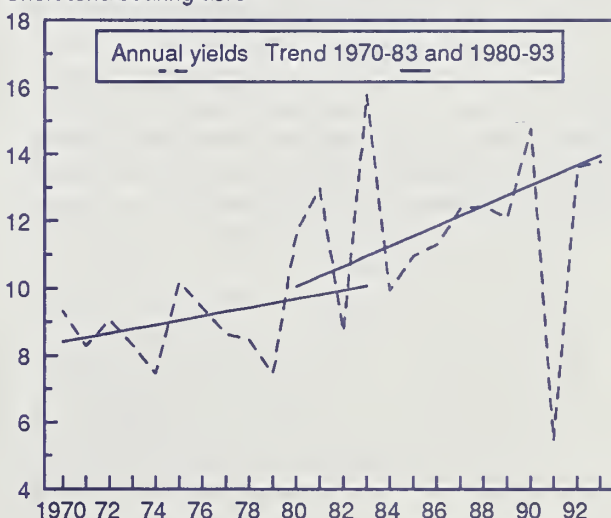
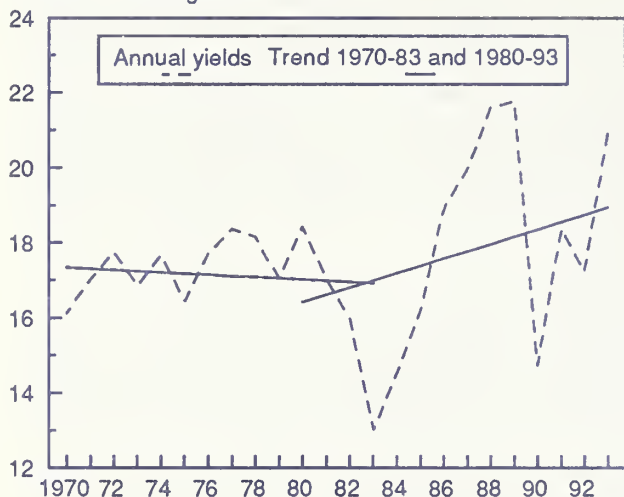


Figure A-8

Florida Grapefruit Yields

Short tons/bearing acre



Some of the increase of Florida grapefruit yields can be attributed to planting more trees per acre. Density of plantings increased from an average 75 trees per acre in 1976 to 98 trees per acre in 1992. Total bearing acreage rose from 98,700 acres in 1970 to peak at 128,600 acres in 1983 before the most tree damage was done by freezes. Bearing acreage dropped to a low of 103,000 acres in 1990, but increased to 111,900 acres in 1993 as replacement trees reached bearing age. Denser plantings and young trees maturing to full-bearing age will help raise future Florida grapefruit yields.

New Plantings Boost California Grapefruit Yields

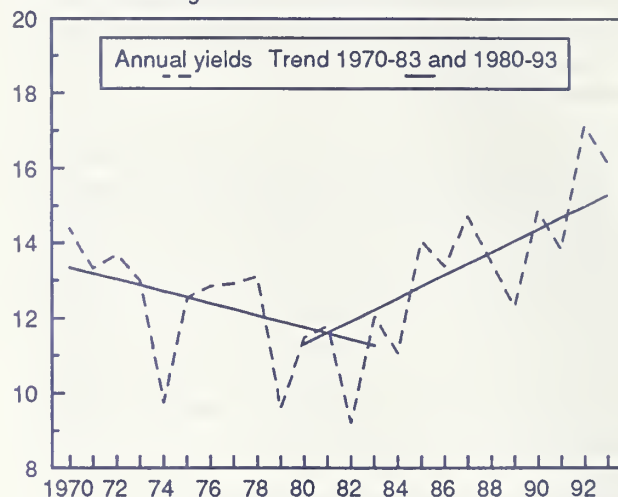
California grapefruit production increased nearly 50 percent from 259,000 short tons in 1970-72 to 380,000 tons in 1991-93. Production growth in the 1970's was due to increases in both bearing acreage and yields per acre, while in the 1980's, continued gains in yields per acre alone raised production. Estimated trend yields per acre dropped 15 percent in the 1970's (from 13.3 tons per acre in 1970 to 11.3 tons per acre in 1983) and then rose 35 percent in the 1980's (to 15.3 tons per acre in 1993).

Trees planted in the 1970's reached full-bearing age in the 1980's, replacing old trees, and boosting California grapefruit yields per acre. Bearing acreage of California grapefruit trees averaged 18,800 acres in 1970-72, rose to a high of 30,200 acres in 1982, and then declined to

Figure A-9

California Grapefruit Yields

Short tons/bearing acre



Calculation of Per-Acre Yield Trends

Annual yields were computed by dividing estimates of utilized commercial production by bearing acreage. Trend lines were estimated from annual estimates for two overlapping 14-year time periods: 1970-83 and 1979-92 for noncitrus fruit; 1970-83 and 1980-93 for citrus fruit.

The trend lines were estimated using the least-squares method, which determines the best line to fit the data by minimizing the sum of the squared deviations (differences between points on the line and the actual, annual values). Extreme values, the highest and lowest yields, were omitted from the data when the regression coefficients were estimated. All annual yield estimates were plotted on the graphs, but the extreme values did not affect the slope of the trend lines.

24,200 acres in 1991-93. Higher-yielding summer varieties were planted as production shifted away from desert areas to other regions of Southern California. Freezes that reduced Florida's grapefruit output and raised prices in the 1980's encouraged more picking of California grapefruit, further elevating yield per acre.

Market Values for the Major Characteristics of Fresh Pears

by

Amy Sparks¹

Abstract: This article presents results of a hedonic analysis which estimates implicit values for characteristics of pears which cannot be directly measured in the marketplace. These implicit values are then used to approximate prices of boxes of pears sold at two different times of the season and with other varied characteristics.

Keywords: Pears, prices, hedonic analysis.

Pears are a popular fresh noncitrus fruit in the United States, ranking sixth in per capita consumption behind bananas, apples, grapes, peaches/nectarines, and strawberries. Like some of these other fresh fruits, U.S. per capita consumption of fresh pears increased during the last 20 years, from an average of 2.36 pounds in the early 1970's to 2.74 pounds in the early 1980's. Pear consumption has stabilized near 3.2 pounds per person in the 1990's. Production and exports of U.S. fresh-market pears have also grown since the 1970's. Although consumption, production, and exports have increased during the last two decades, there has been little analysis of the demand that is driving the U.S. pear industry.

To begin to understand the demand for pears, it is important to determine how different characteristics affect the total price of pears. This article addresses how selected qualities of pears are valued in the marketplace.

The characteristics examined in this study that impact pear demand are type of storage used, variety, domestic or export market, grade, size, and week sold. The two types of storage include regular and controlled atmosphere, the varieties include Bartlett and D'Anjou, and the grades include US #1, Fancy, and Extra Fancy. There are seven pear sizes and 36 weeks from the 1991/92 marketing year (beginning the first week of September) included in this data set. The original data set was supplied by the Washington Growers' Clearing House. While other characteristics such as nutritional value or taste may merit placing an implicit value on, data for these characteristics are not available.

The results of the reference pear analysis are as follows: \$16.94 for a box of pears which have been in regular storage, are Bartletts, sold in the domestic market, grade of US #1, the largest size, and sold in the first week of the

marketing season. These are quite reasonable results for the pear market.

The coefficients on the variables (characteristics) which are included in the regression indicate the premium or discount received for each characteristic (figure B-1). For controlled atmosphere storage there is a premium of \$0.60 per box, for the D'Anjou variety there is a premium of \$0.75. Exported pears receive a premium of \$1.14 per box. This makes sense because exported pears are usually

Hedonic Analysis

Hedonic analysis is used to estimate implicit values of characteristics for which prices are not directly observable in the marketplace. This is done with regression analysis, using a constructed time series data set. Actual prices observed in the marketplace are used in the data set, and zero/one values are used for the characteristics. If a box of pears possesses a certain characteristic, the variable representing that characteristic is given a one for that time period. If it does not possess that characteristic, it is given a zero. The actual quantities sold are not used.

The regression analysis used simple linear regression. The price per box of pears (dependent variable) was regressed on the zero/one variables (independent variables) representing each of the characteristics, with one of each type not included. In that way one obtains a price per box for pears with the characteristics which are not included as variables in the regression. This reference price is represented by the value of the estimated constant. The regression coefficients are implicit prices for each of the observed characteristics, which are included in the regression.

¹Agricultural Economist, Specialty Agriculture Branch, Commodity Economics Division, ERS.

Figure B-1

Estimated Premiums and Discounts for Characteristics of Fresh Pears

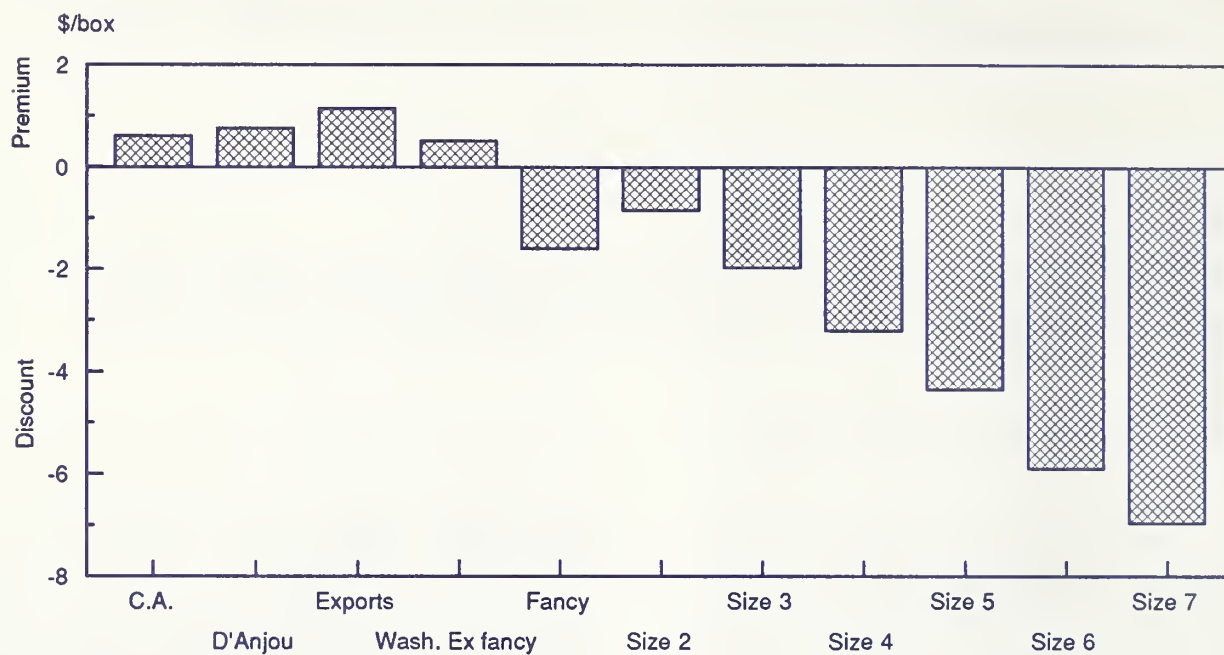
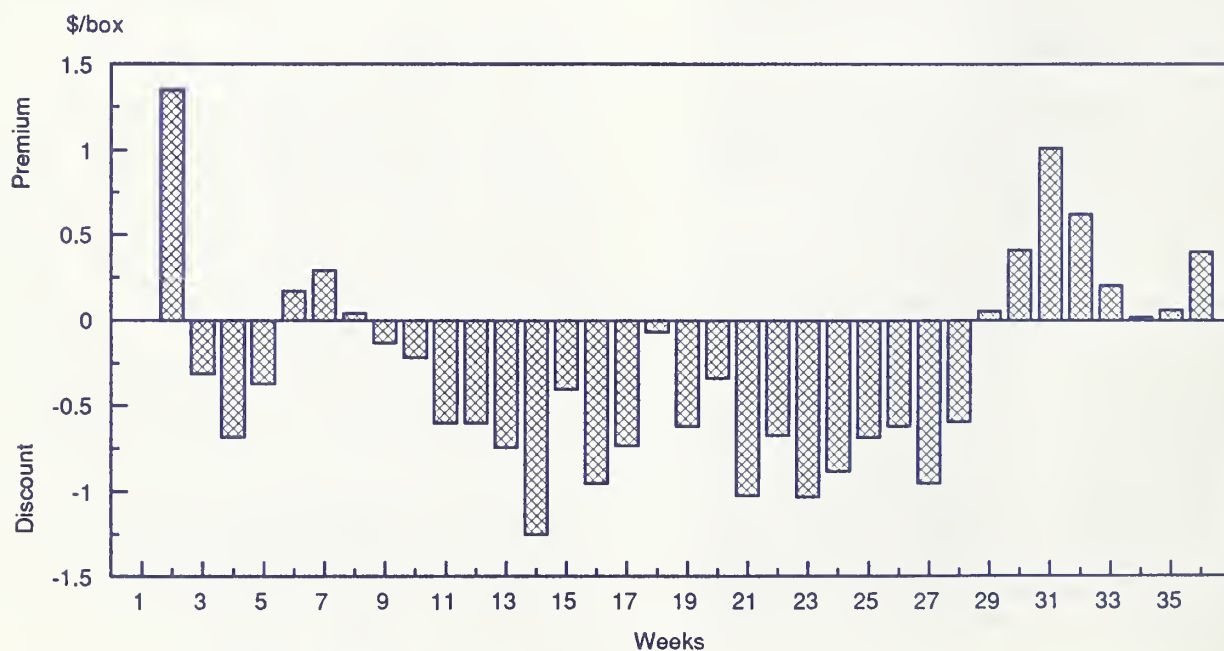


Figure B-2

Estimated Premiums and Discounts for the Weeks of the Season



Week 1 is included in the reference price for pears.

the highest quality product available. They also usually are targeted for the destination where their characteristics are most often requested in the market.

The grade of Washington Extra Fancy receives a premium of \$0.50 per box. Fancy pears are discounted \$1.61 per box from U.S. #1. There were seven sizes of pears used in the regression. The largest size, which was part of the reference, is the highest valued in the marketplace. Each of the six following sizes are discounted from this, with a larger discount for the smaller size.

The weekly premiums or discounts follow an expected pattern--an early season premium, with a rapid falling off (figure B-2). Then later a Thanksgiving effect which results in a premium for 3 weeks. Following that there were several weeks of discounts possibly resulting from the marginally lower quality of the pears coming out of regular storage. The last 8 weeks of the time series received premiums. This likely reflects returns from controlled atmosphere storage when pear supplies seasonally decline.

These results could be useful in marketing fresh pears. They could be used to direct sellers and shippers to characteristics that have the highest return on the market, whether to sell in domestic or export markets, what sizes and grades are the most valuable, and the weeks when prices are likely to be high.

Table B-1--Coefficients Indicating Implicit Market Values for Pear Characteristics

Characteristic	Coefficient	t-value
Constant	16.94 (reference price)	54.27
Controlled Atmosphere ¹	0.60 (premium)	3.84
D'Anjou	0.75 (premium)	3.56
Exports	1.14 (premium)	3.16
Fancy	-1.61 (discount)	-14.11
Washington Extra Fancy	0.50 (premium)	3.58
Size 2	-0.84 (discount)	-6.29
Size 3	-1.98 (discount)	-14.14
Size 4	-3.21 (discount)	-23.10
Size 5	-4.36 (discount)	-28.41
Size 6	-5.90 (discount)	-30.82
Size 7	-6.97 (discount)	-14.74

¹The coefficient on this characteristic indicates that a box of pears stored in a controlled atmosphere receives a premium of \$0.60 relative to the reference pear price (a box of pears stored in regular storage). The t-value of 3.84 indicates that this coefficient is statistically significant at the 99 percent level. The coefficients and t-values for other characteristics in Table B-1 are read in a similar manner.

Note: $R^2 = 0.56$. Standard Error of the Regression = 1.94

Applications of the Model

Two distinctly different times of year for the marketing of fresh pears are the Thanksgiving season and the last several weeks of the season. The results of this analysis can be used to approximate the price per box with specified characteristics sold during these two periods. For the Thanksgiving season, week eight is a representative time to consider. Because it is so early in the season, there is no need to consider the controlled-atmosphere storage premium. The variety we will choose is D'Anjou, sold in the domestic market. Let us include the premium for Washington Extra Fancy. Also, the largest, reference pear size is considered.

With these characteristics delineated, it is possible to calculate the price per box which would likely be received by marketers and shippers.

Base price = \$16.94
 + 0.75 D'Anjou
 + 0.50 Washington Extra Fancy
 + 0.04 Week 8
 = \$18.23 per box during week 8--a week representing the Thanksgiving season.

The second time of year we are considering is the next to last week of the season. Two scenarios will be considered here. The first is that, with the exception of the week sold, all other characteristics will be the same as in the first example. With that in mind, the calculated price per box is:

Base price = \$16.94
 + 0.60 Controlled Atmosphere storage
 + 0.75 D'Anjou variety
 + 0.50 Washington Extra Fancy
 + 0.06 Week 35
 = \$18.85 per box

The second scenario we will consider for this same week has different characteristics. These other characteristics are Fancy instead of Washington Extra Fancy, and the third largest size instead of the largest. The price per box with those characteristics is:

Base price = \$16.94
 + 0.75 D'Anjou variety
 + 0.60 Controlled Atmosphere
 - 1.61 Fancy
 - 1.98 Size 3
 + 0.06 Week 35
 = \$14.76 per box

These examples illustrate the usefulness of hedonic analysis in approximating prices marketers and shippers are likely to receive for boxes of pears with selected characteristics sold during different weeks of the season.

United States
Department of Agriculture
1301 New York Avenue, NW
Washington, DC 20005-4789

OFFICIAL BUSINESS

Penalty for Private Use, \$300

FIRST CLASS
POSTAGE & FEES PAID
USDA
PERMIT NO. G-145

MOVING? To change your address, send this sheet with label intact, showing new address to: EMS Information, Rm 228, 1301 New York Ave., NW, Washington, DC 20005-4789

List of Tables

Table	Page
1. U.S. monthly consumer fresh fruit price indexes, 1991-93	4
2. U.S. monthly grower price indexes, 1991-93	5
3. U.S. monthly consumer fruit price indexes, 1991-93	5
4. U.S. monthly retail prices for selected fruits and juice, 1991-93	6
5. U.S. monthly producer price indexes, 1991-93	7
6. Citrus fruit: Utilized production by crop, State, and United States, 1990/91-1993/94	8
7. Estimated utilization of round oranges, Florida, 1986/87-1993/94	9
8. United States: Orange juice supply and utilization, 1985/86-1993/94	11
9. Fresh-market oranges: Supply and Utilization, 1989/90-1993/94	12
10. Oranges: Utilized production, United States, 1990/91-1993/94	13
11. Oranges: Average monthly equivalent on-tree prices received by growers, California, 1990-93	13
12. Oranges: Average monthly equivalent on-tree prices received by growers, Florida, 1990-93	13
13. Fresh grapefruit: Supply and Utilization, 1985/86-1993/94	14
14. Grapefruit: Utilized production, United States, 1990/91-1993/94	15
15. Estimated utilization of Florida grapefruit, 1989/90-1993/94	15
16. Grapefruit: Average monthly equivalent on-tree prices received by growers, Florida, 1990-93	15
17. Lemons: Average monthly equivalent on-tree prices received by growers, United States, 1990-93	16
18. Limes: Average monthly equivalent on-tree prices received by growers, Florida, 1990-93	17
19. Citrus fruit: Season-average equivalent on-tree returns received by growers, by States, variety, and use, 1990/91-1992/93	18
20. Citrus fruit: Season-average equivalent P.H.D. returns received by growers, by States, variety, and use, 1990/91-1992/93	19
21. U.S. citrus fruits: Production, use, and value, 1987/88-1992/93	20
22. Apples, commercial production, 1991-93	22
23. U.S.-average monthly grower prices for fresh apples and pears, 1991/92-1993/94	22
24. U.S.-average monthly grower prices for fresh peaches and strawberries, 1991-93	23
25. Cranberries: Total production and season-average grower prices, 1990-92 and indicated 1993 production	25
26. Cranberries: Acreage harvested, yield per acre, production, utilization, season-average grower price, and value, United States, 1983-92	25
27. Destinations of selected U.S. fruit exports, 1988/89-1992/93	26
28. Destinations of selected U.S. fruit exports, 1988-92	27
29. Tree nuts: Production in principal States, 1988-92, and indicated 1993	31
30. Tree nuts: Supply and utilization, by commodity and marketing year, 1987/88-1993/94	32